



Our next revolution

**Focusing
on what
matters...**

*...so we work
with the ecosystem
not against it*

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+64 21 444 839 / Kiwiki on Facebook

Rod Oram's presentation to the
Environment Institute of Australia & NZ
Wellington, March 27th, 2015

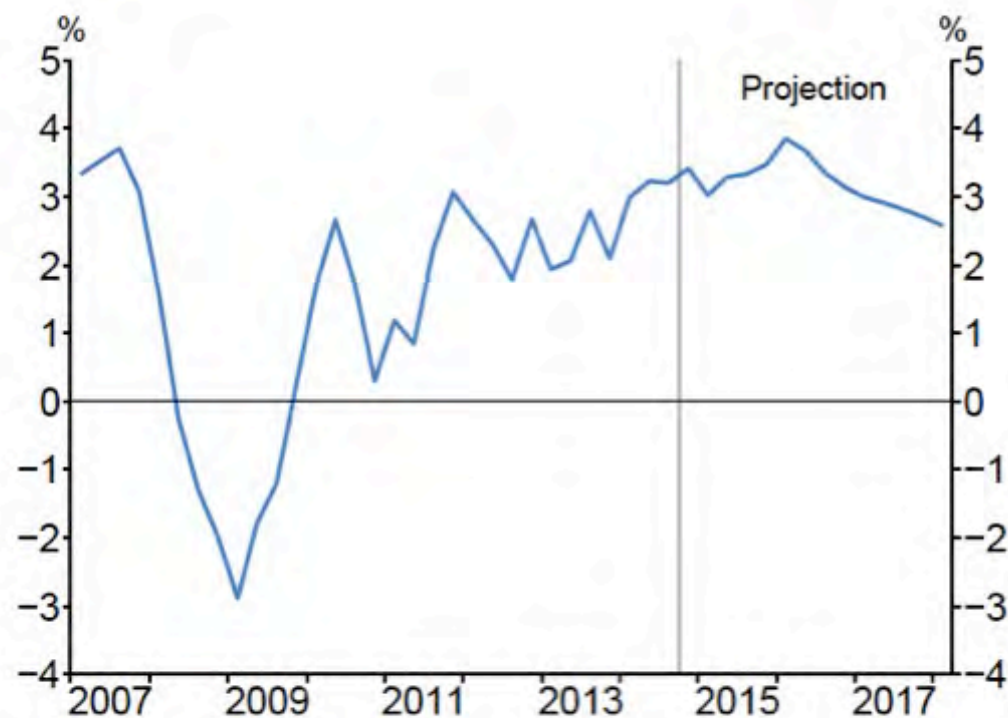
Agenda

- Wall
- World
- Revolution

We're hitting the wall

- Growth driven largely by:
 - Milk and log exports
 - Christchurch rebuild
 - Consumer spending
 - ...& some business investment
- But growth peaked mid-2014
 - ...pace is slackening
- GDP +3.5% in year to March 2015
- ...and around 2.7% in 2016
- ...and 2.5% in 2017
- We're slipping back to our long-term (and slow) growth rate

GDP growth
(annual)

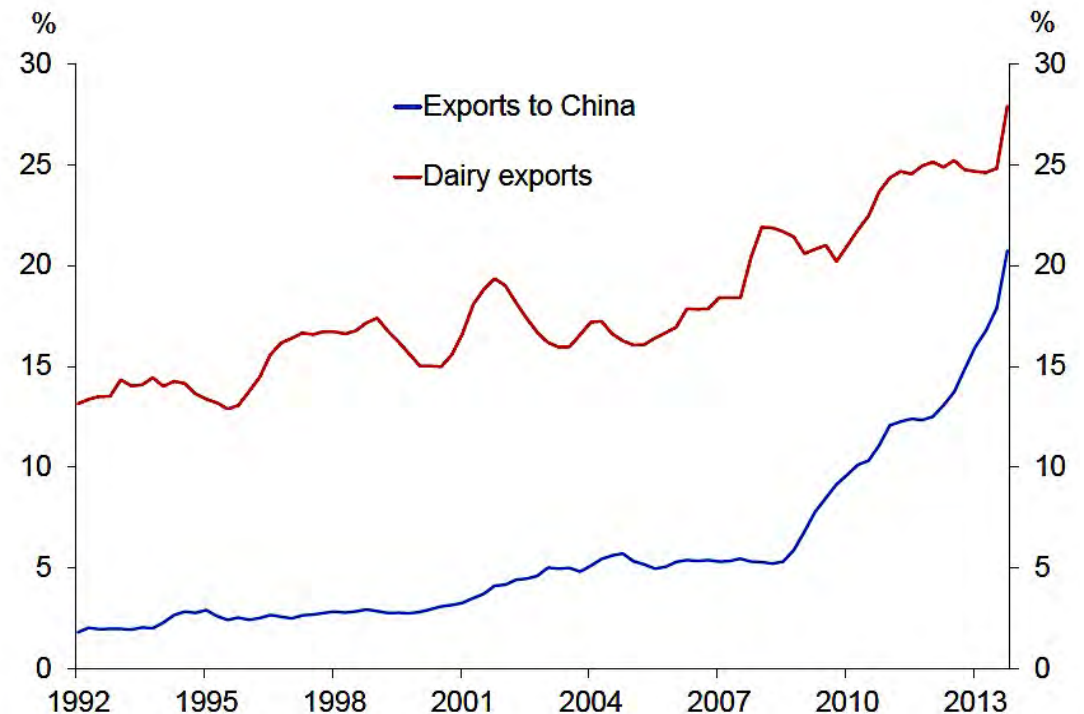


Source: Statistics New Zealand, RBNZ estimates.

Simpler exports

- But we're becoming an ever-simpler economy
- Selling more...
- ...but a smaller range of simple products
 - e.g. milk powder & logs
- ...to fewer countries
- Dairy is our largest exports
- But whole milk powder is 80% of dairy exports
- China is our largest customer

Concentration of New Zealand exports
(percent of total exports)



Source: Statistics New Zealand.

Value Creation

- World Economic Forum – Global Competitiveness Report
- Competitive advantage measured on a scale of:
- 1 = low cost of natural resources to 7 = unique products & processes

New Zealand scores 3.8

Ranks 36th

Value Capture

- Value chain measured on a scale of:
- 1 = role in chain mainly confined to one step, eg resource extraction
- ...to 7 = involved all the way down the chain, capturing extra value

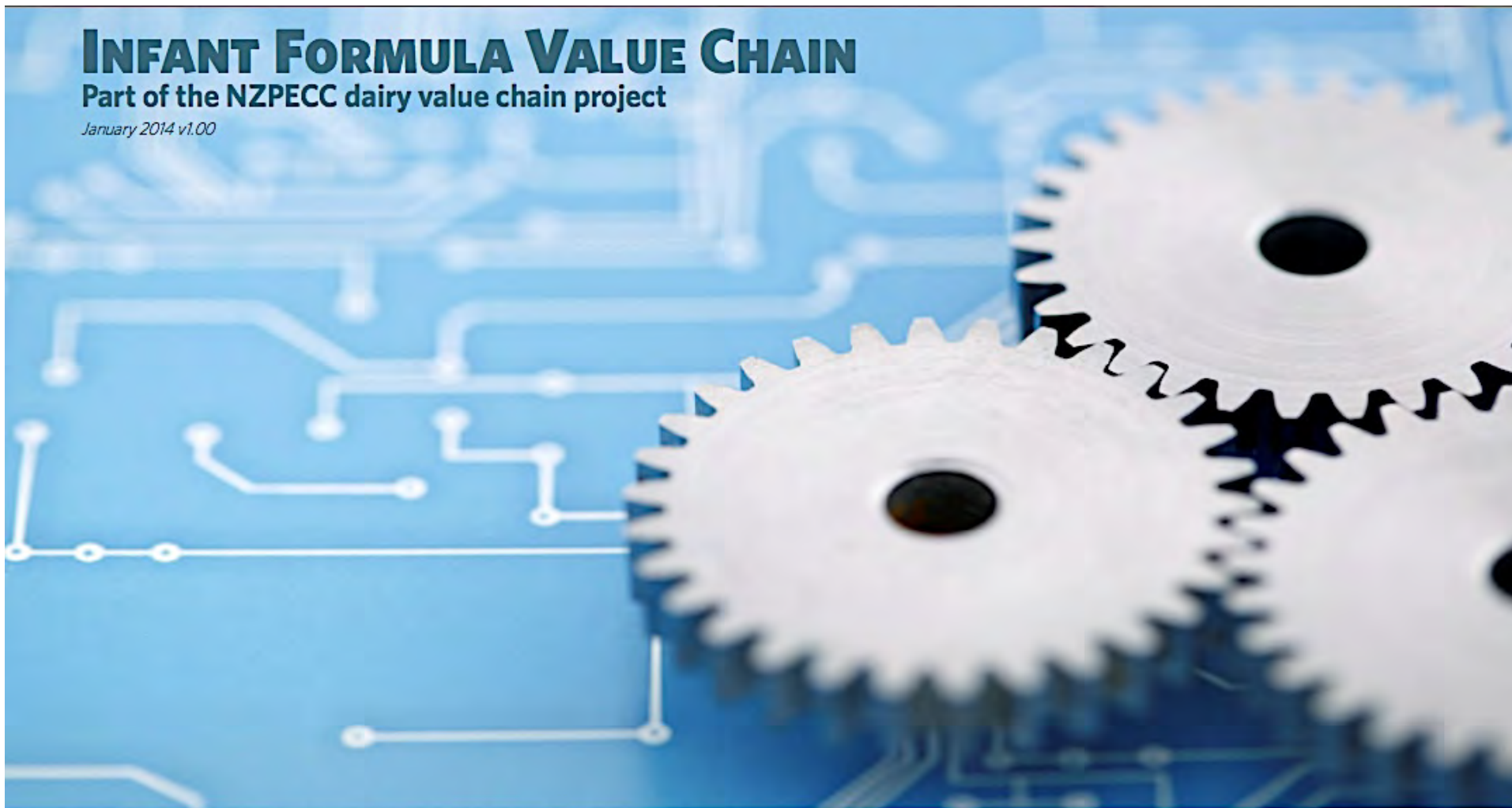
New Zealand scores 3.8

Ranks 58th

INFANT FORMULA VALUE CHAIN

Part of the NZPECC dairy value chain project

January 2014 v1.00



This information was prepared by Coriolis solely for the use of our client; it is not to be relied on by any third party without prior written consent.

CORIOLIS 
research • consulting • strategy

NZ's share of infant formula profits – 12%

INFANT FORMULA VALUE CHAIN - MARKUP VS. EBITDA VS. ASSETS REQUIRED



Looking beyond markup by stage, into profitability (EBITDA) and nominal assets required to achieve the profit highlights relative returns along the chain; the low return of dairy farmers on their farm value stands out

MODEL: Value chain of a nominal "can of infant formula": markup to stage prior, EBITDA and assets required

NZ\$, actual; 2012



Pro rata per nominal can

NZ's challenge

- NZ's theoretical GDP per capita:
 - \$43,518
- OECD average GDP per capita:
 - \$37,181
- NZ's actual GDP per capita:
 - \$30,179
- Our gap between theory & reality
 - minus 30%
- We need much stronger international connections
- ...to grow our way up value chain
 - Productivity Commission's latest report

UNDER EMBARGO UNTIL
WEDNESDAY 16 APRIL 10AM NZT



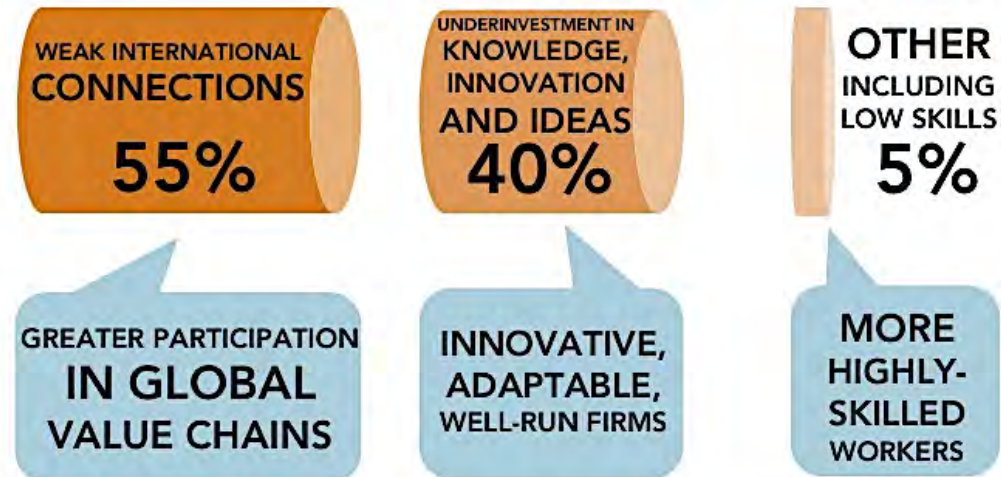
WHY NEW ZEALAND HAS LOW PRODUCTIVITY

KEY FIGURES



WHY THE PRODUCTIVITY GAP?

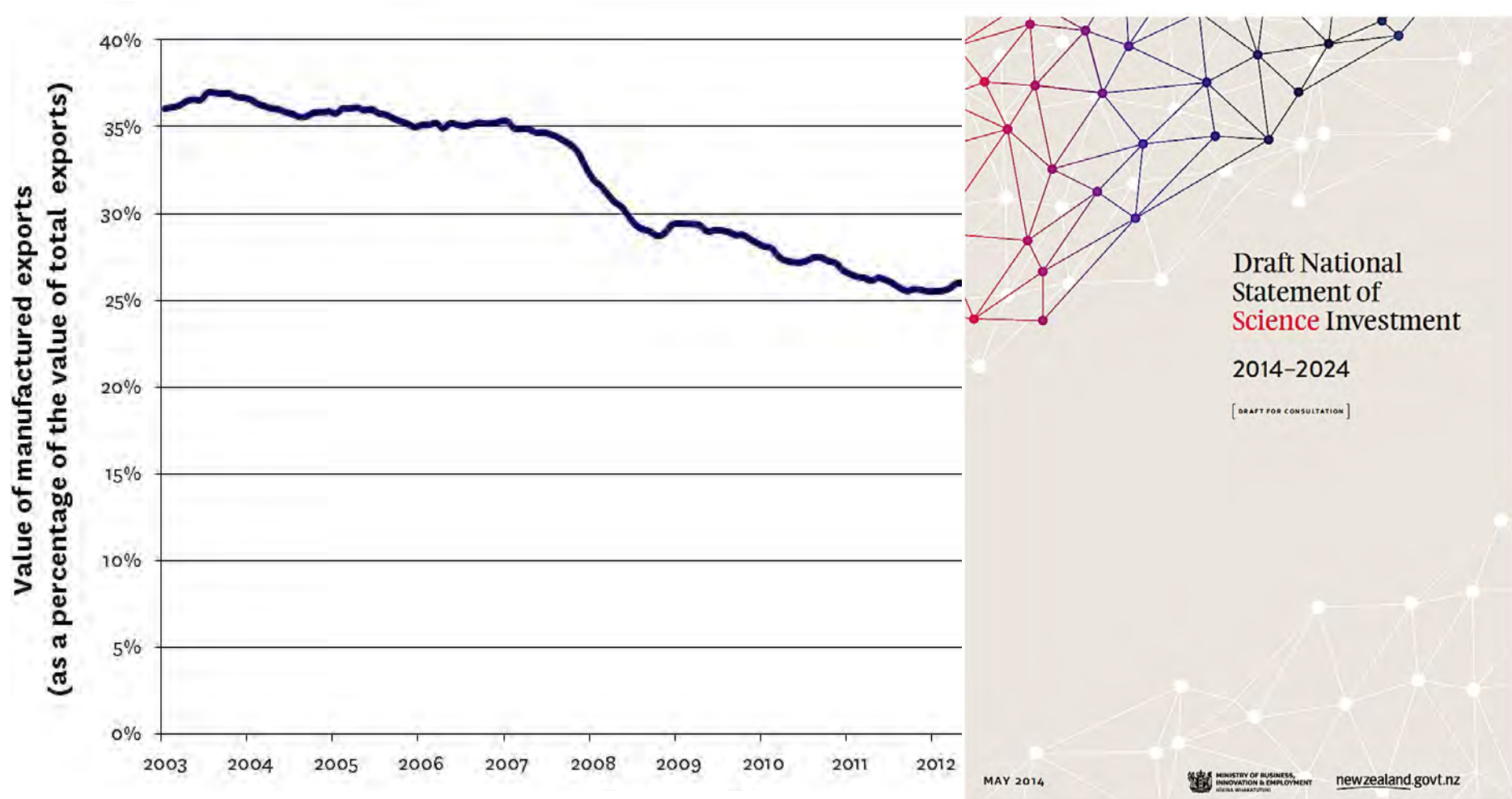
AND HOW IT COULD CLOSE



TAKEN FROM "AN INTERNATIONAL PERSPECTIVE ON THE NEW ZEALAND PRODUCTIVITY PARADOX", NEW ZEALAND PRODUCTIVITY COMMISSION WORKING PAPER 2014/01

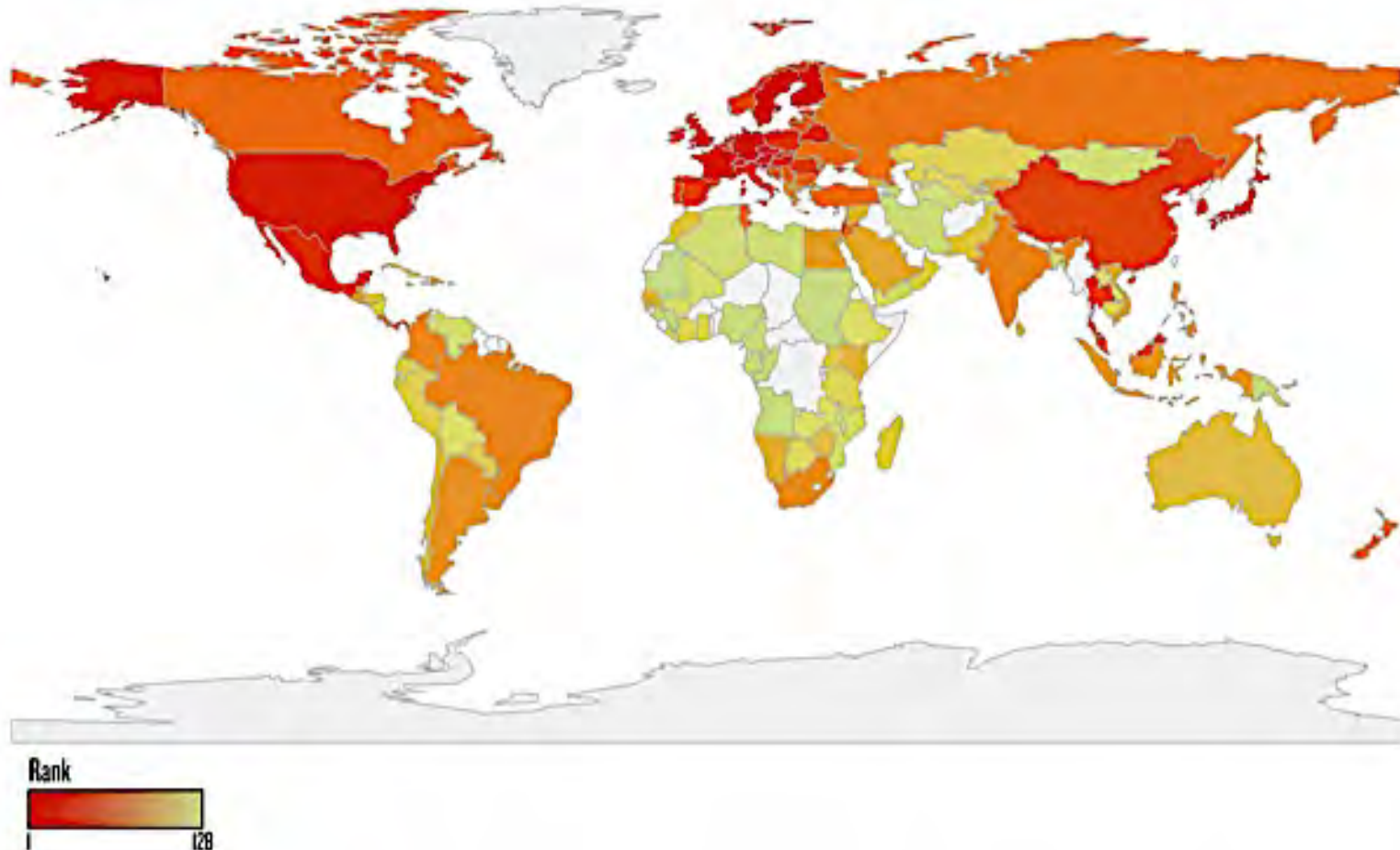
Manufactured exports are falling

- ...from 37% of total exports in 2003 to 22% today
- ...with commodities taking a growing share of total exports
- Yet, government funding for science and tertiary education is falling in real terms



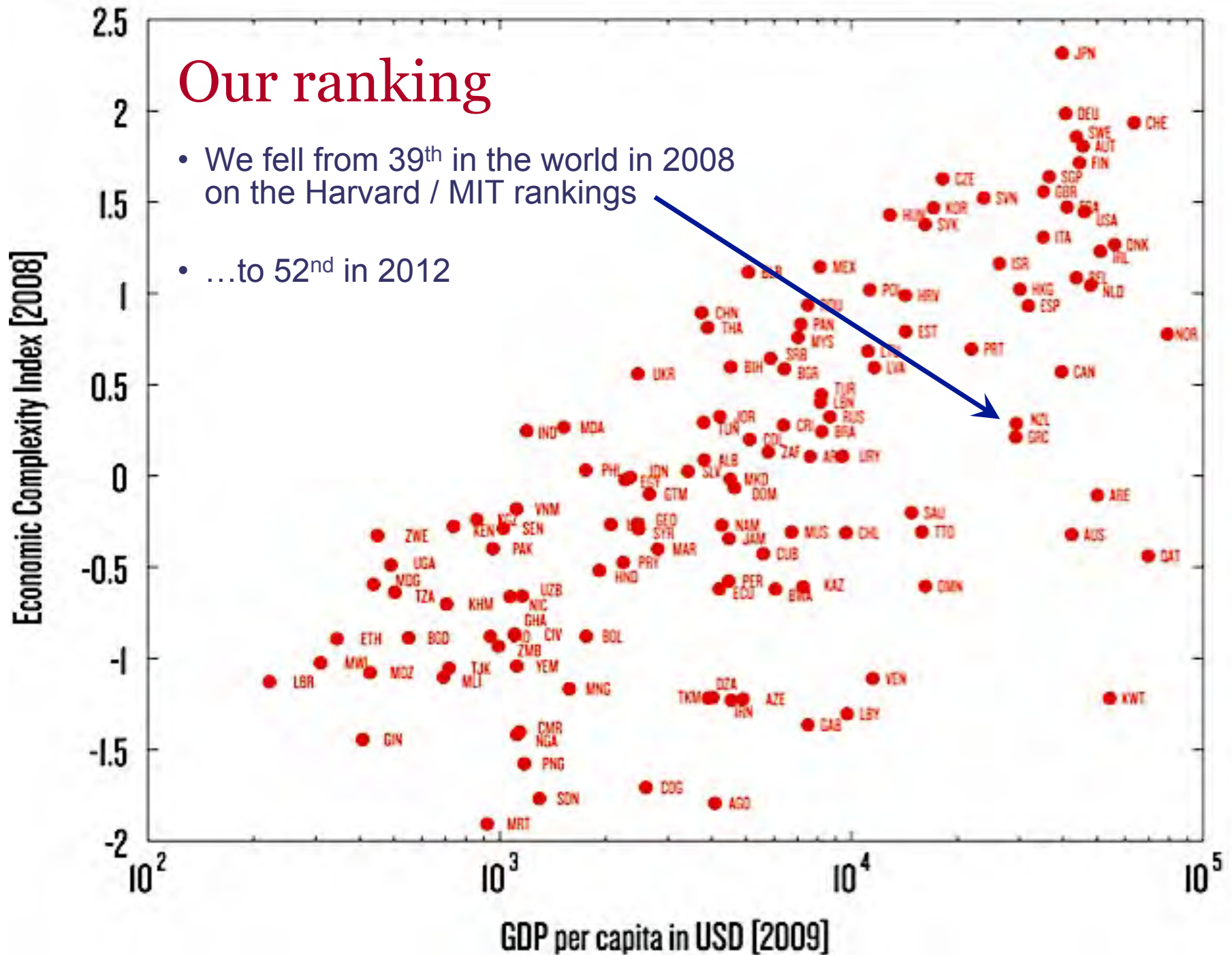
Complexity of economies

- The more diverse & complex an economy is...the richer it is
- Long-term research by Harvard & MIT
 - http://en.wikipedia.org/wiki/Economic_complexity_index



Our ranking

- We fell from 39th in the world in 2008 on the Harvard / MIT rankings
- ...to 52nd in 2012



Paradox

Abundance

Scarcity

Poverty

Cows

Scientists

Poverty

Tourists

Engagement

Poverty

LGA, RMA, EEZ

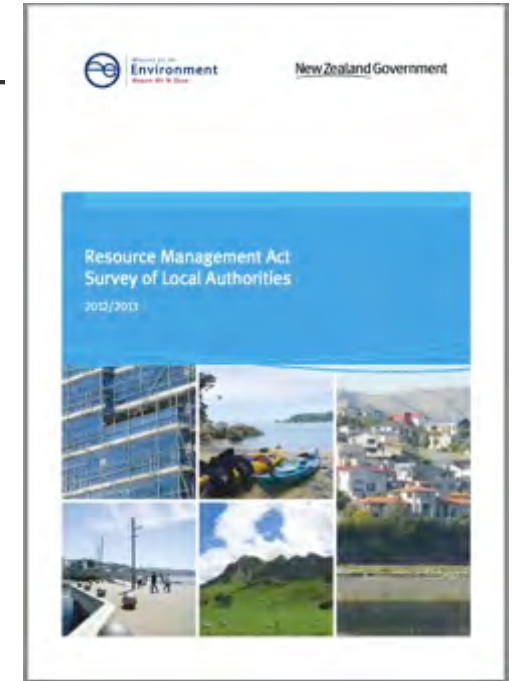
Society

The RMA...world-leading legislation



RMA's exemplary performance – MfE report

- Number of consent applications:
 - 34,055 in 2012/13, down 38% from 54,658 in 2003/04
- Non-notified:
 - 95% - big decline in notified consents since 2007/08
- Declined:
 - 0.27% (less than half the rate of previous five years)
- Objections:
 - 317, down from 480 in 2010/11
- Appeals:
 - 239, down by two-thirds from 2010/11
- Timeliness:
 - 97% processed on time, regardless of type of consent or notification
 - Improvement since 2007/08; had deteriorated 2001/02 to 2007/08
 - Time extensions used in 17% of applications (33% in 2007/08)



RMA's exemplary performance – MfE report

- Charges:
 - Half of the 1,121 applications processed outside statutory timeframes had their fees discounted; this equals 2% of all applications, 3x increase
- Good practice methodologies:
 - Standard consent conditions (50% of councils)
 - Identifying affected parties (50% of councils)
 - Notifying applications (66%)
 - Identifying and addressing environmental effects (83%)
- Staffing:
 - RMA staffing levels have decreased by 25%-33% across all three types of local authority since the last survey
 - Decreases in all job categories except regional council scientists and unitary authority planners

...but problems

- Complexity of plan changes:
 - 133 undertaken 2012/13, of which 111 initiated by councils, up 12 since previous survey.
 - Number of privately-initiated plan changes has fallen in past three surveys
 - Time for council plan changes from notification to operations averaged 24 months, up 7 months from previous survey
 - Time for private plan changes averaged 24 months, up 8 months
- Lack of government guidance:
 - Three NPSs and five NESs in place...but implementation varies widely
 - E.g. 66% of TLAs have not applied NES for Human Drinking Water
 - E.g. 33% of unitary authorities have applied no NESs

...but problems

- Enforcements:
 - 3,400 enforcement actions taken by councils
 - 58% of those were abatement notices, double since previous survey
 - Number of infringement notices declined
 - Enforcement orders seldom used
- Enforcement problems:
 - 80% of councils said lack resources to monitor and enforce effectively
 - Only 436.7 FTEs in monitoring, enforcement, investigations, prosecutions
 - E.g. time and cost of court actions problematic for ratepayers
 - Negative attitudes and behaviour of some consent holders to compliance
- 2012/13 was the last RMA performance survey by MfE
 - Being replaced by National Monitoring System
 - Work began in 2011...still not complete
- Likewise painfully slow progress on the Environmental Reporting Bill
 - ...decades behind other developed countries

The case for the RMA...

- We achieve good growth...with OK environmental performance
 - E.g. doubling of cows to more than 5m in the past 20 years
 - ...with big economic gains...and adverse environmental impacts
- We couldn't have pushed growth harder
- The RMA has succeeded despite governments' lack of NPSs & NESs
- Many councils keep learning how to work better with it
 - ...but more help needed for the under-resourced, ill-equipped councils
- Still plenty of scope to improve the workings of the RMA
 - ...without destroying its architecture, processes and precedents
- The biggest problem of all:
 - **We micro-measure the cost of the RMA**
 - **...but we never measure the benefits it delivers**

The case against the RMA...

- “The Act is not working for New Zealand or New Zealanders”

“The Act has some fundamental design flaws that require substantial overhaul.”

- Environment Minister Nick Smith, Nelson, January 21st, 2015
- His evidence:
 - 80,000 pages of council plans
 - ...yes, planning is complicated
- A few horrendous stories
 - ...but they were severe outliers
 - ...if they were typical, this country would be a shambles, economically and environmentally



The freshwater journey in recent decades

- Late 1980s-1990s:
 - RMA – brilliant legislation
 - Flawed by:
 - Lack of National Policy Statements
 - Couldn't handle cumulative effects (e.g. water allocation & quality)
 - Impact: Urban sprawl and deteriorating waterways
- 2000s
 - Labour government tried hard but failed spectacularly on water
 - ...as National had previously

The turning point...

EDS NATIONAL CONFERENCE 2014



- home
- sponsors
- programme
- registration
- venue & accommodation
- speakers
- 2013 conference
- 2012 conference
- 2011 conference
- 2010 conference
- 2009 conference
- 2008 conference
- 2007 conference
- contact



Other EDS Websites

- EDS
- RMA Guide
- NZ Coastal Trust

2008 Conference

Conflict in Paradise: the Transformation of Rural New Zealand

11-12 June 2008
The Langham Hotel, Auckland

Final papers from *Conflict in Paradise: the transformation of Rural New Zealand* are available here. Please click on the link below for a PDF copy of the conference programme:

 [Conflict in Paradise Programme](#)

...the outcome



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LOGIN >>

A Common Direction for Water Management in New Zealand

Water provides great opportunities for all of us – for our ecologies and environments, our farms and our cities, for recreation and for tourists, as well as for energy production and industry. It is a source of life and food, and it is a central part of our identity, particularly for iwi. Water thus has multiple uses and sustains multiple values, which sometimes complement each other, and sometimes conflict.

Forum News

Launch of the Third Report of the Land and Water Forum

15 November 2012

The Forum's third major report covers managing within limits. It recommends integrated decision-making in catchments, continuous improvement of management

Land and Water Forum

- Social capital...understanding...collaboration
- Excellent reports...mapping the way forward
- Government dithered and compromised
- (...in contrast, Scandinavian governments enact what the collaborators agree to live by)
- Flawed NPS on freshwater
- Deeply flawed National Objectives Framework
- Compromised, complex, dysfunctional processes for catchments
- Breakdown of social compact
- We can still make it work...but it will be very, very hard

National Objectives Framework

- The fundamental flaws:
 - Water standards...not water health
 - Many (most?) limits far too permissive
 - Nitrates particularly egregious
 - Deeply inadequate national and local measurement
 - No measures of ecosystem health...
 - Macroinvertebrates index is fundamental but absent
 - Secondary contact is too easy a standard...
 - Swimmability has to be the ultimate quality...
 - ...a very big MCI: measure of ecosystem health
- **Ultimate outcomes needed:
swimability and \$15 kg / ms and \$15 kg for lambs**

Freshwater reform 2013 and beyond

Message from the Ministers

1. Introducing freshwater reform

2. Today's challenges

3. The future for fresh water

Freshwater management process and proposed reforms

4. Planning as a community

5. A National Objectives Framework

6. Managing within quantity and quality limits

7 How to have your say

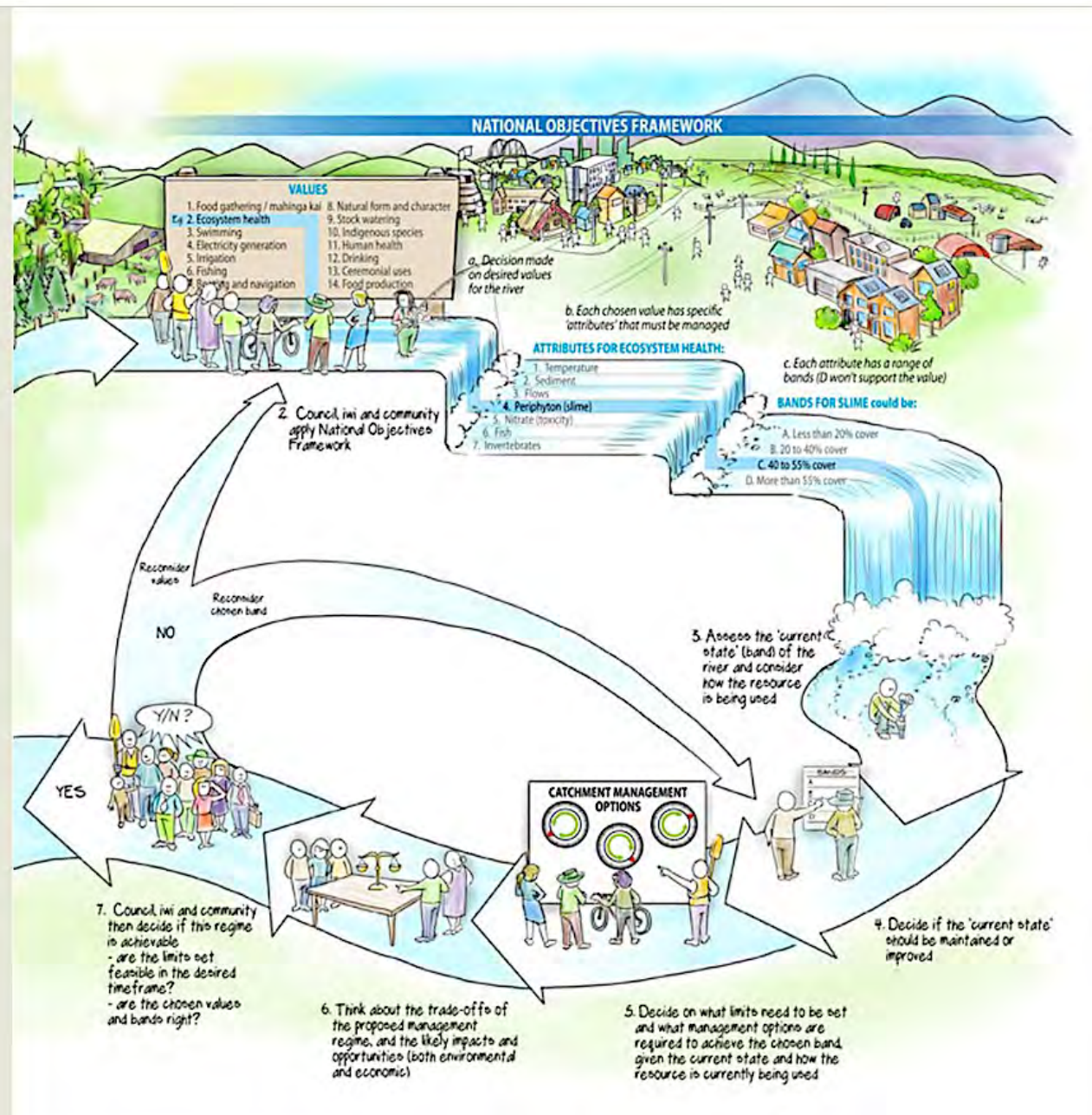
Appendix A: Mana Atua Mana Tangata Framework

Glossary

Illustration on managing fresh water in NZ

You are here: [Publications](#) > [Water](#) > [Freshwater reform 2013 and beyond](#) >

5. A National Objectives Framework



Freshwater regulation - the process

- NOF seriously sub-standard compared with many council plans
- Where does that leave the NOF?
- Community process will be fraught
- Absence of comprehensive, consistent national data
- 2025 deadline absurdly distant
- Land grabs in the meantime by heavy polluters
- Maximum milk growth 2.5% pa – DairyNZ
- Government goal of doubling exports by 2025 goal even more impossible
- Highly litigious...compounded by government's planned RMA changes
- Very high, very grave risk water quality will continue to decline
- **But it might work if:**
 - People co-operated in good faith to vastly improve the system
 - We worked on the economics of land use

Poverty

Sustainability

Weak

Strong

BY 2031
AUCKLAND POPULATION
WILL REACH
2 MILLION



THIS IS **60%**
OF NZ'S
PROJECTED POPULATION
GROWTH BETWEEN
2011-2031

400,000
NEW DWELLINGS
WILL BE NEEDED BY 2040



THIS IS EQUIVALENT TO **13,000**
NEW HOUSES EACH YEAR

IN THE YEAR 2012
4,260 WERE APPROVED

PUTTING PRESSURE ON



INFRASTRUCTURE

AUCKLAND COMPRISES:

2%
OF NZ'S LANDMASS,
BUT

1/3
OF NZ'S
ECONOMY AND
POPULATION

AUCKLAND'S
ECOLOGICAL FOOTPRINT

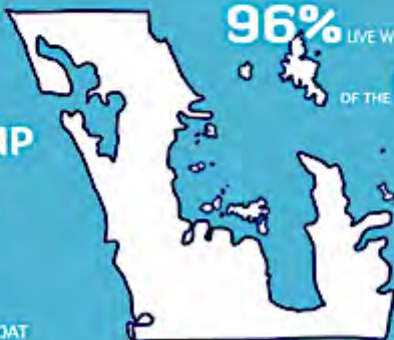
IS

4.8 TIMES
OUR LAND AREA



HIGHEST
PER CAPITA
BOAT
OWNERSHIP
IN THE
WORLD

1 in 3
HOUSEHOLDS OWN A BOAT



96% LIVE WITHIN
OF THE **5 KM**
COAST

70%
OF THE
AUCKLAND AREA IS
COASTAL
WATER

DOUBLE EXPORT TARGET

- Doubling primary sector exports by 2025
- Increase exports from **30% to 40%** of GDP



DAIRY

Contributes **2.8%** of GDP (**\$5 billion**),
and creates employment for c.45,000



TOURISM

Largest export industry
\$18.6 billion to the
economy each year (9%
of GDP)

AQUACULTURE TARGET

Industry goal to increase sales
to **\$1 billion** by 2025



ENERGY TARGET

90% of electricity
generation from
renewable sources by
2025



PETROLEUM & MINERALS

- Most productive sector in NZ economy
- **2.5%** of GDP and **6.2%** of exports in 2013
- Workers paid on average **>\$100,000**



**NZ is third in the world for percent
renewables in primary energy supply**

Agenda

- Wall
- **World**
- Revolution

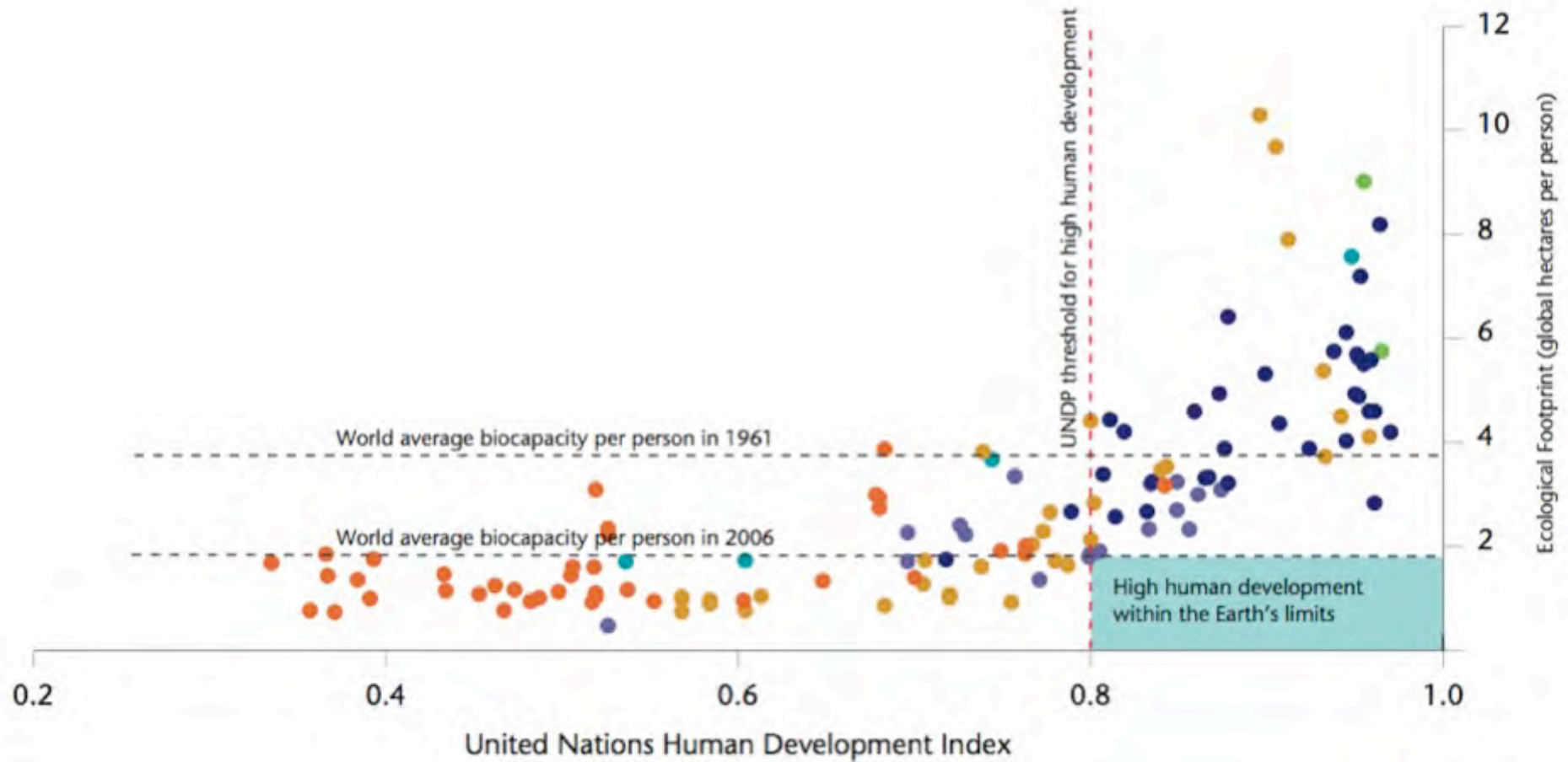
People, planet

- *Vision 2050*
- A very challenging roadmap for corporate development by World Business Council for Sustainable Development
- ...NZ version too



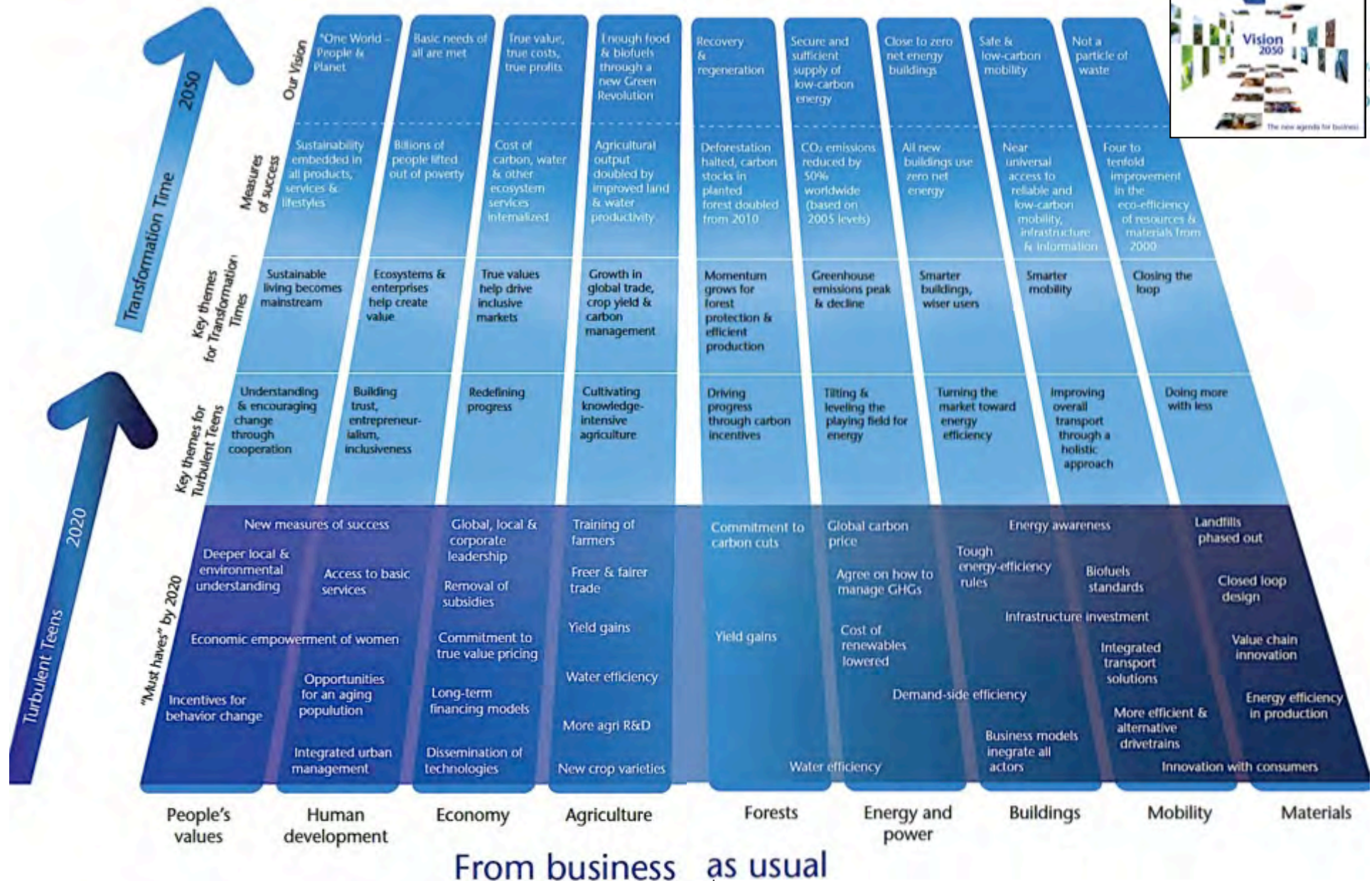
Finite resources

- African countries
- Asian countries
- European countries
- Latin American and Caribbean countries
- North American countries
- Oceanian countries



We must have unprecedented scale, speed & complexity of change

To a sustainable world in 2050



Green imperative

Harvard Business Review

Why Sustainability Is Now the Key Driver of Innovation

by Ram Nidumolu, C.K. Prahalad, and M.R. Ranganaswami



How Green Will Save Us: September, 2009 edition:

“There is no alternative to sustainable development.

“Our research shows that sustainability is a mother lode of organisational and technological innovations that yield both bottom-line and top-line returns...

...In fact, because those are the goals of corporate innovation, we find that smart companies now treat sustainability as innovation’s new frontier.”

Truth about Green Tape

- Recent report from OECD
- Stringency of environmental policies is rising
- Such policies can lift productivity
- Claims they hobble productivity are greatly exaggerated

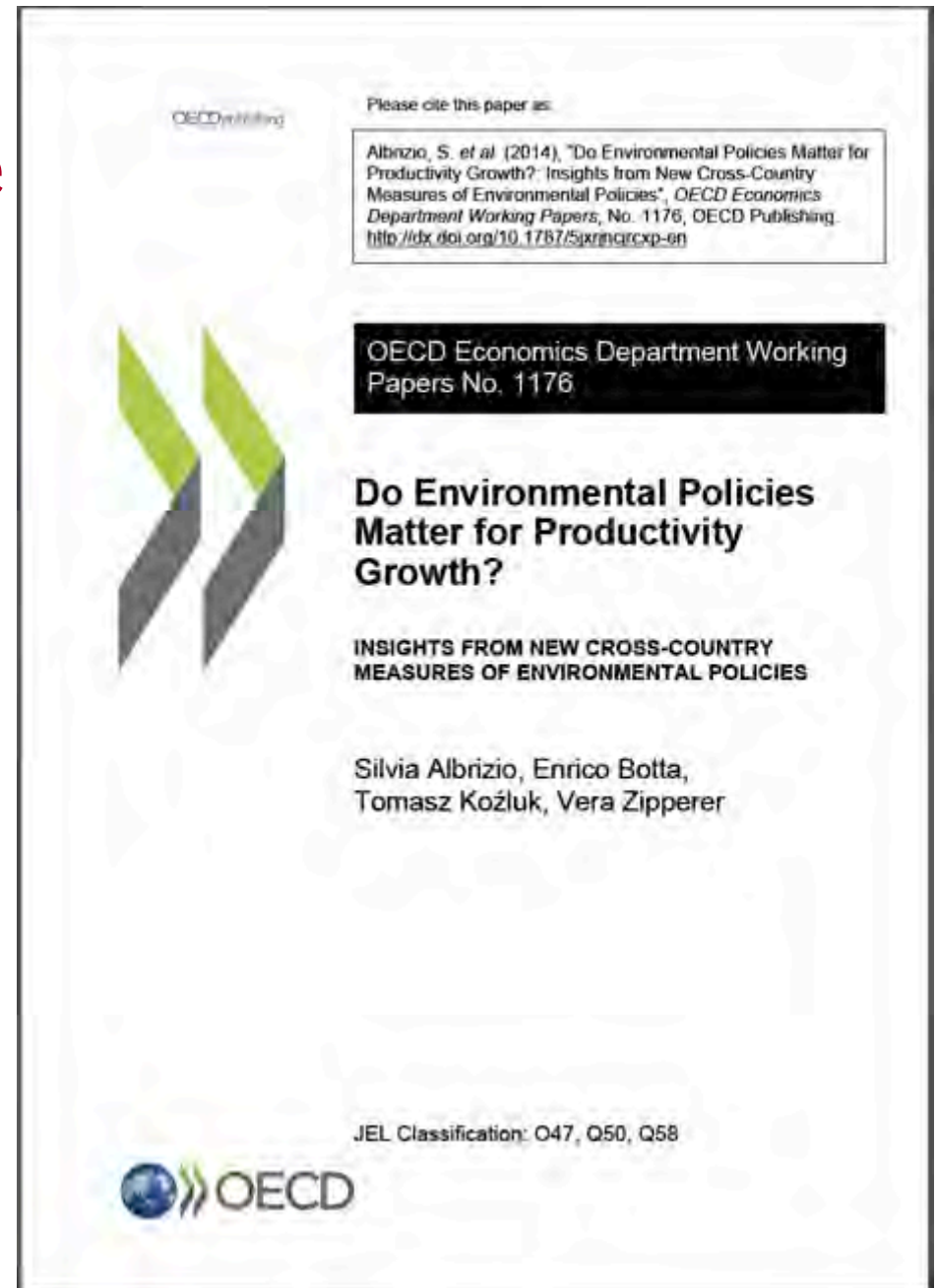


Figure 5. The stringency of environmental policies has been increasing across the OECD

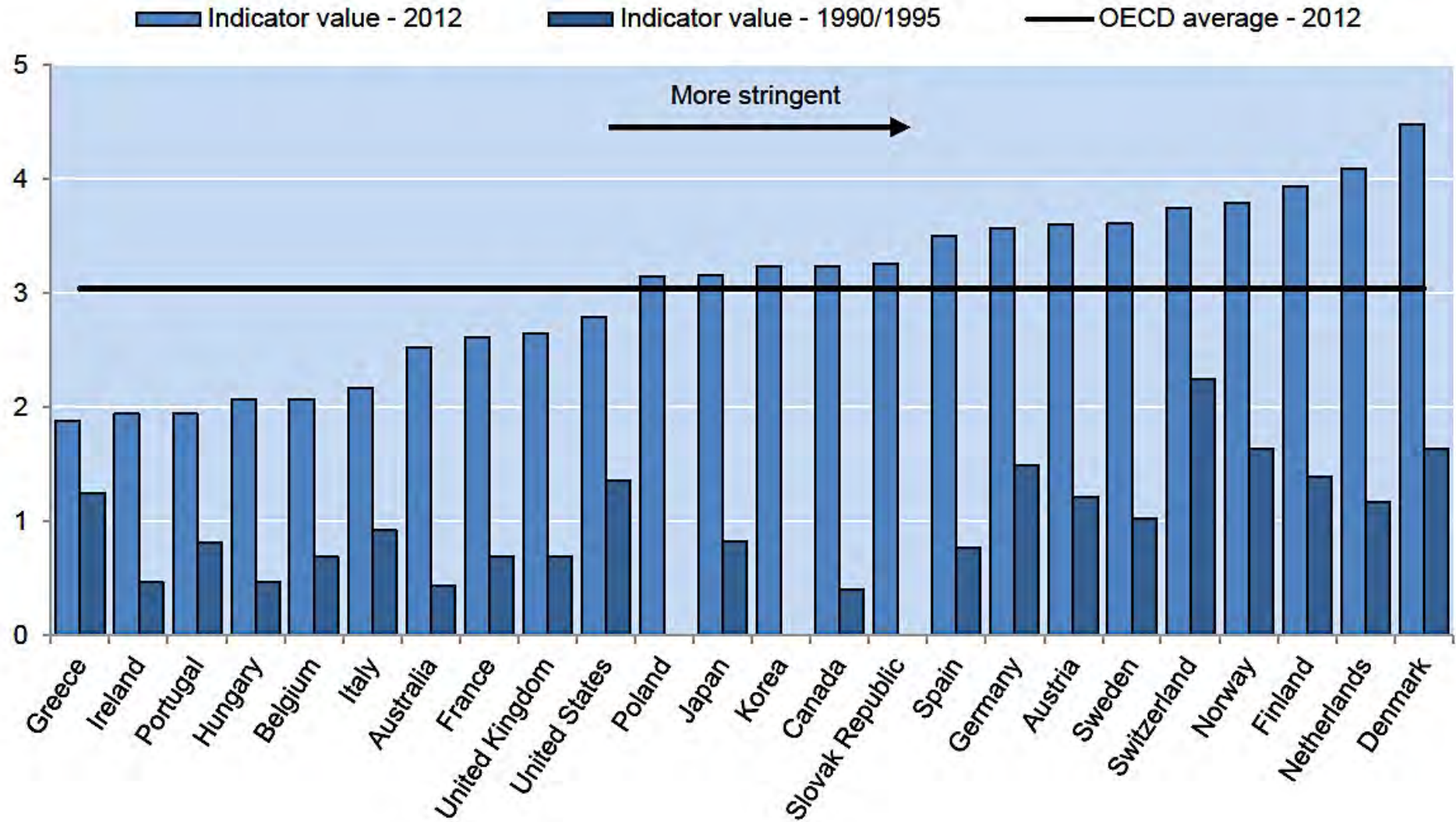
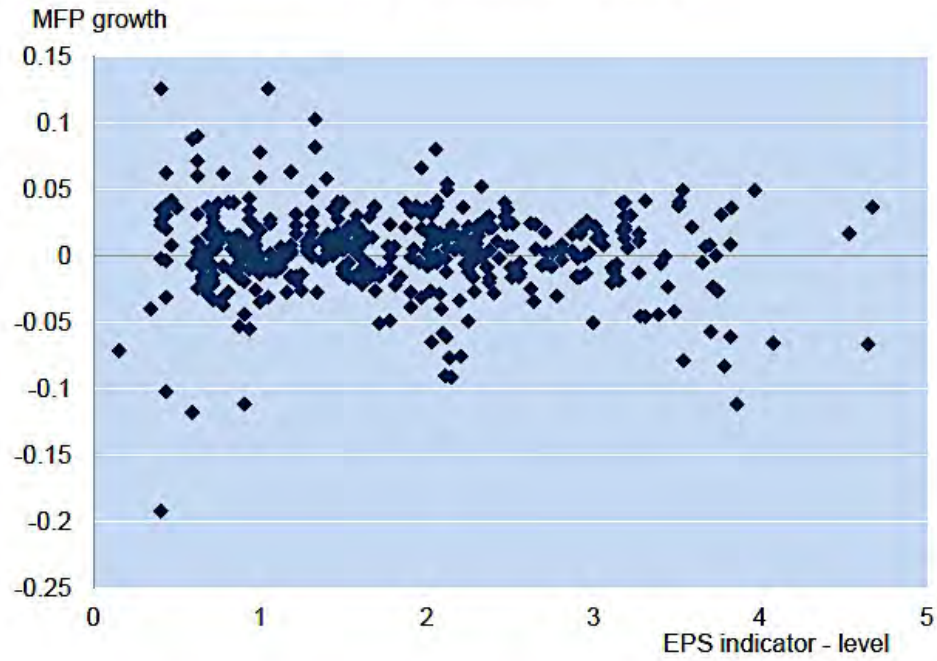
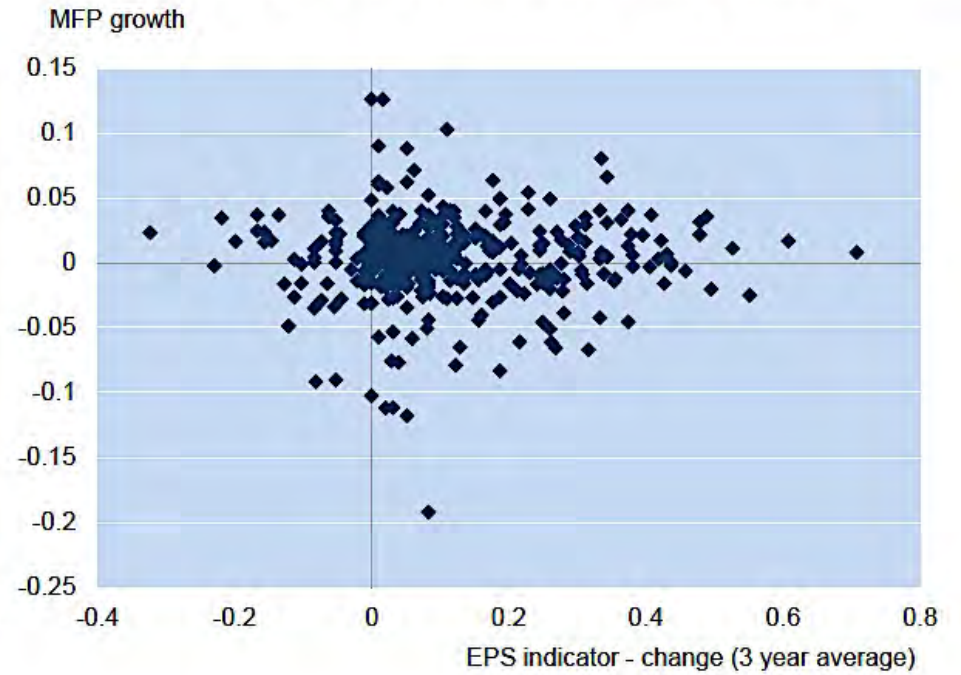


Figure 10. Correlations between EPS and MFP growth at the macro level

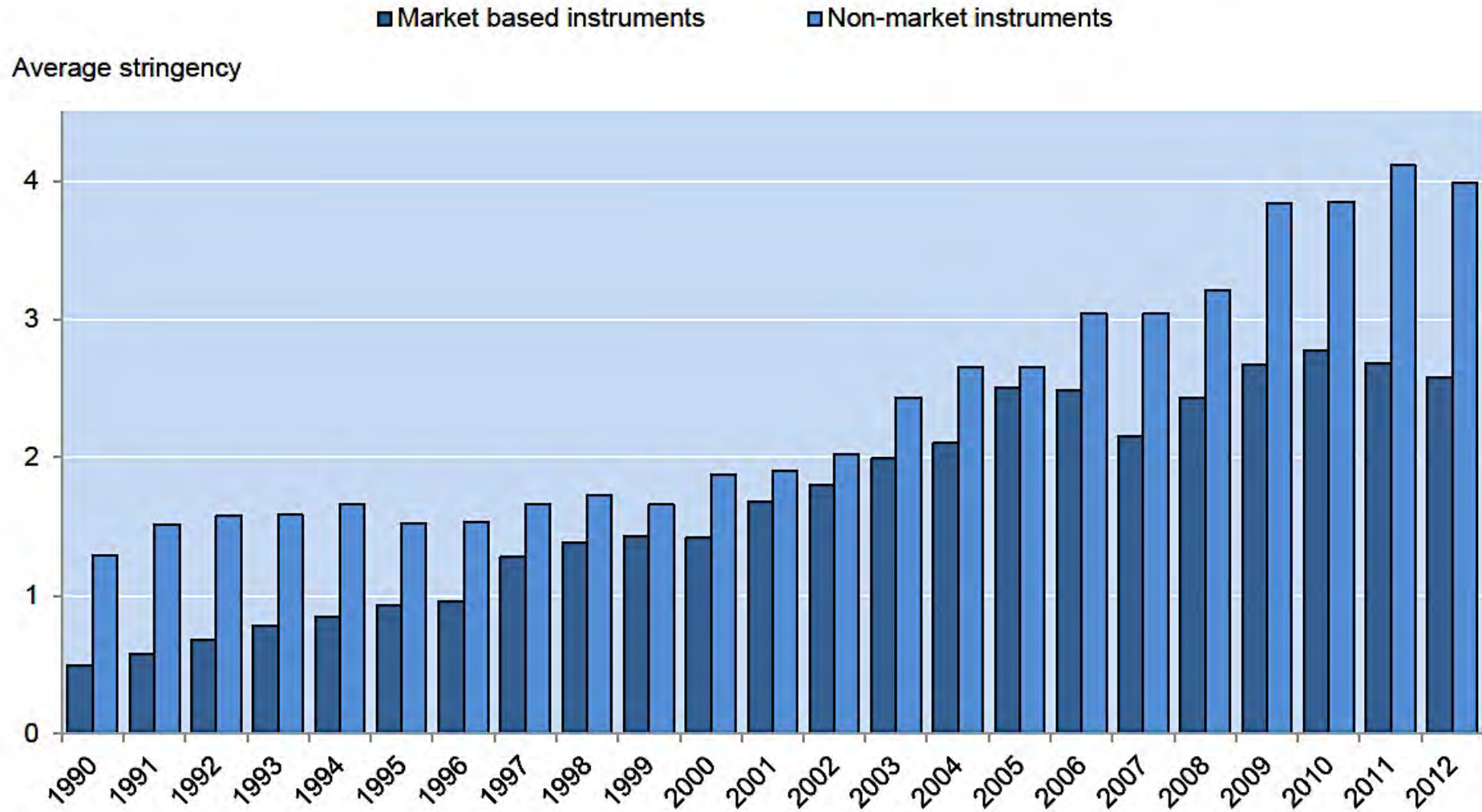
A. MFP growth and EPS levels



B. MFP growth and EPS change (3-year moving average)



A. Market-based and non-market EPS components across time, fixed sub-sample OECD average



Rethinking business – e.g. Unilever

- Unilever's fundamental changes, e.g.
- **Energy:** Minimising energy people use consuming Unilever's food, personal care and other products
 - ...*not simply* reducing Unilever's production energy
- **Farmers:** Ensuring sustainability of farmers and their communities
 - ...*not simply* securing commodity raw materials
- **Corporate:** Experimenting with new structures & drivers such as Benefit Corporations in US for Ben & Jerry's ice cream subsidiary
 - ...*not simply* doing a bit of Corporate Social Responsibility

Impact - Unilever

The Economist | World politics | Business & finance | Economics | Science & technology | Culture

Unilever

In search of the good business

For the second time in its 120-year history, Unilever is trying to redefine what it means to be a virtuous company

Aug 9th 2014 | PORT SUNLIGHT | From the print edition

Timekeeper | Like 359 | Tweet 312

SLEEPING in the open on top of his mansion was a nightly routine for William Lever, founder of what is now Unilever, an Anglo-Dutch consumer-goods giant. When Paul Polman became chief executive of the soap-to-ice-cream-maker in 2009 (joining from a Swiss rival, Nestlé), the Dutchman spent a night in Lever's rooftop bed as part of a total immersion in the history of his new firm. It helped persuade him, a year later, to launch a "Sustainable Living Plan", the name for his attempt to make Unilever the pre-eminent example of how to do capitalism responsibly, just as it had once been under Lever.

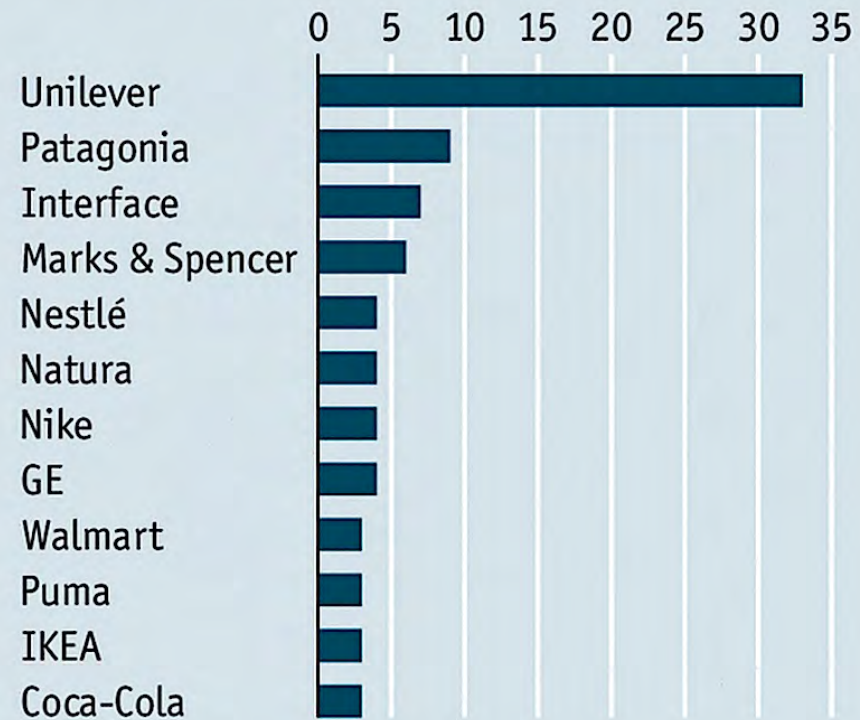


Unilever's lifebelt

Outdoing even the Cadburys of Birmingham and the Rowntrees of York, Lever had pioneered the Victorian model of paternalistic business. At a time when

By a mile

Leaders in sustainability, % of analysts polled

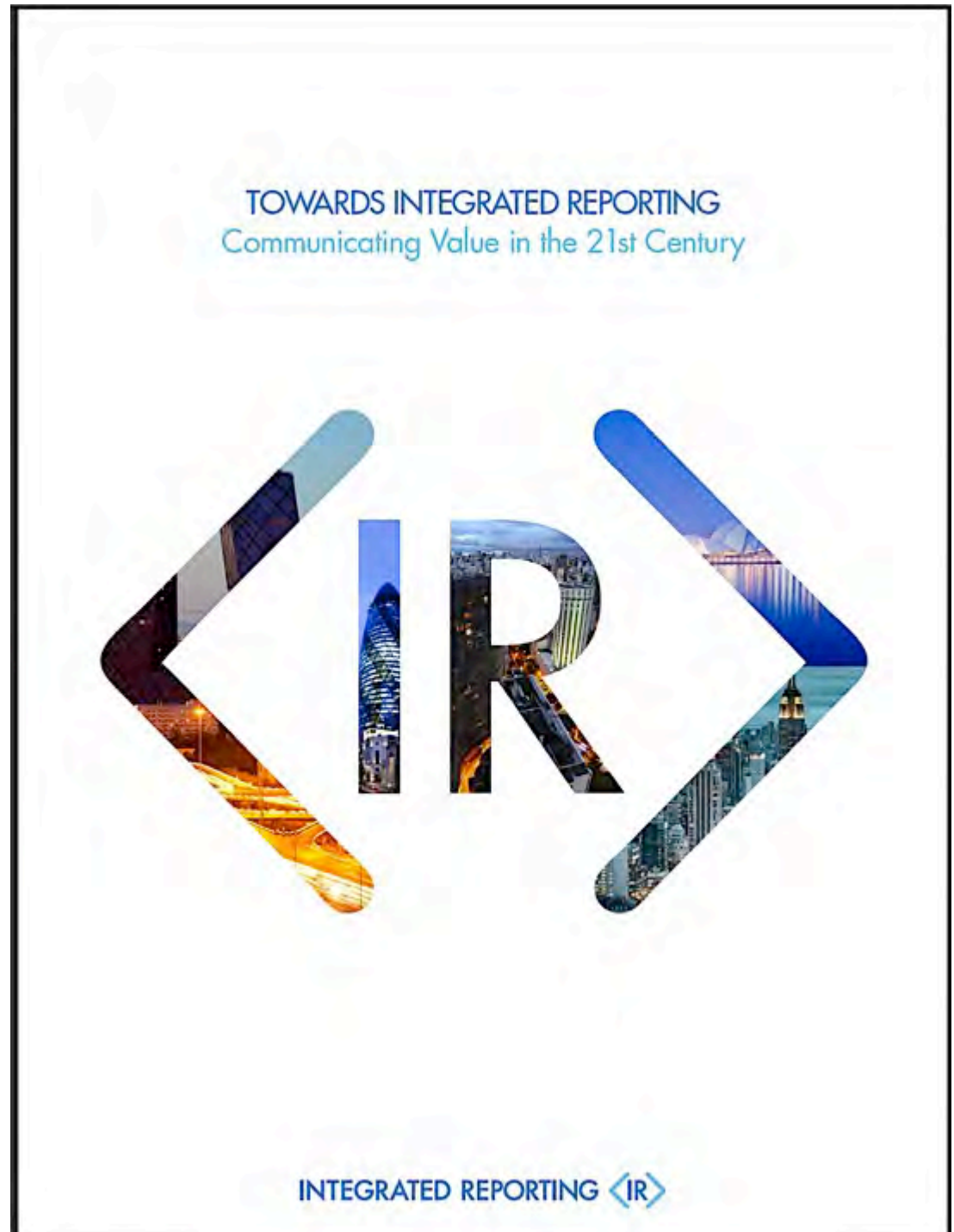


Source: GlobeScan/SustainAbility Survey

- <http://www.economist.com/news/business/21611103-second-time-its-120-year-history-unilever-trying-redefine-what-it-means-be>

Integrated Reporting

- The next big initiative by corporates and accounting bodies
- Seeking to make financial, environmental and social measures...
- ...much easier, more accessible and more useful to corporates, investors and the public
- www.theiirc.org



NZ Post – 1st integrated report in New Zealand



The screenshot shows the top portion of a web page titled "INTEGRATED REPORTING <IR>". The navigation menu includes: HOME, <IR> FRAMEWORK, ABOUT <IR>, THE IIRC, IIRC PILOT PROGRAMME, EVENTS, NEWS, and IIRC BLOG. The breadcrumb trail reads: HOME » MEMBERS » BUSINESS NETWORK » NEW ZEALAND POST, NEW ZEALAND – POSTAL SERVICES. The main heading is "NEW ZEALAND POST, NEW ZEALAND – POSTAL SERVICES". Below this is a sub-heading "ABOUT NEW ZEALAND POST" and a paragraph: "New Zealand Post Group consists of a range of businesses providing communication and business solutions, from the core mail business through to banking and digital solutions." To the left of this text is the New Zealand Post Group logo, which consists of a red envelope icon inside a red circle, followed by the text "NEW ZEALAND POST GROUP". Below the paragraph is another sub-heading "NEW ZEALAND POST AND INTEGRATED REPORTING" and a line of text: "New Zealand Post explained its move towards Integrated Reporting in their [2013 Annual Review](#) (Page 8):". A "« Back" button is visible in the top right corner of the content area.

- <http://www.theiirc.org/2013/12/16/new-zealand-post-new-zealand-postal-services/>

books distributed through Travelling Books programme

7,000

680 unformed couriers

3,200

KiwiBank customers found homes in 2012

during the Hobbit stamps and coins promotion:
tallest dwarf on NZ Post House

6 1/2 metres



over 820 000 KIWIBANK CUSTOMERS

SEVEN HUNDRED SEVENTY-ONE AND A HALF MILLION letters and parcels

reduction in energy use

5%



88,274 customers switched to Kiwibank

delivery to 1.9 million



New Zealand addresses

NEW ZEALAND'S



INTEGRATED ANNUAL REPORT

BUILDING our relationships



GROWING our networks



EXPANDING our expertise



VALUING our people



SUSTAINING our environment



PROTECTING our finances



drop in mail volumes, year-on-year

7.5%

2800

community organisations supported through Community Post

96,000 KMS EVERY DAY



the distance travelled by rural delivery drivers

= 4 DAYS TO REACH THE MOON

THE NEW CLIMATE ECONOMY

The Global Commission on the Economy and Climate

TRANSLATE 



Home

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Approach

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The launch of Better Growth, Better Climate: The New Economy Report

Our report - Better Growth, Better Climate: The New Climate Economy launch on Tuesday, 16 September 2014 at 9:00 am EST. Watch our report at <http://webtv.un.org/>.



BETTER GROWTH BETTER CLIMATE

The New Climate Economy Report

THE SYNTHESIS REPORT

THE GLOBAL COMMISSION ON THE ECONOMY AND CLIMATE

与清华大学合作开展气候

，请点击下方链接。

The Global Commission on the Economy and Climate

One of the most critical and urgent challenges facing countries today is achieving economic prosperity and development while also combating climate change.

The Global Commission on the Economy and Climate, and its flagship project The New Climate Economy, have been set up to help governments, businesses and society make better-informed

September 16, 2014 9:00am

New York Launch of the New Climate Economy at the United Nations

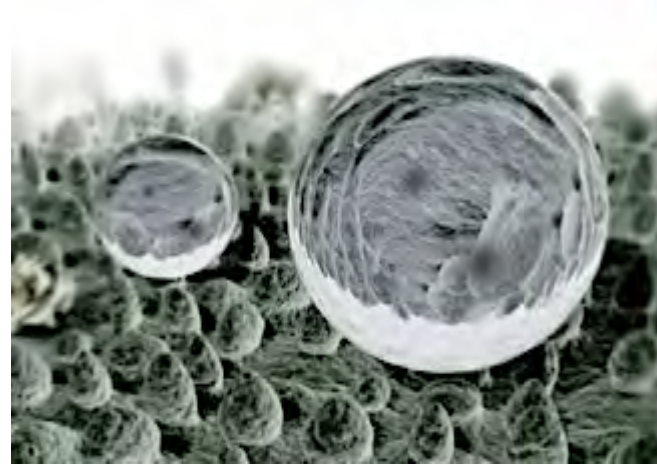
ING EVENTS

Better Growth, Better Climate - Our choice

- 2014 – 2030
- Total investment in the global economy = US\$ 300 – 400 trillion
- Low carbon investment will cost a bit more than high carbon business-as-usual
 - Extra cost = 1% - 4% of GDP in 2030
 - ...i.e. achieve the same level of GDP about 6 to 12 months later
- **High carbon** investment
 - Cities, land use and energy sources
 - = US\$89 trillion
- **Low carbon** investment
 - Cities, land use and energy sources
 - = US\$93 trillion
- Extra cost for low carbon investment:
 - = US\$4 trillion - probably an over-estimate
given inadequacies of conventional economic models
 - = US\$270 billion a year = 1.5x New Zealand's GDP per year
- **Low carbon is cheaper than high carbon, if operating costs are included**

Biomimicry

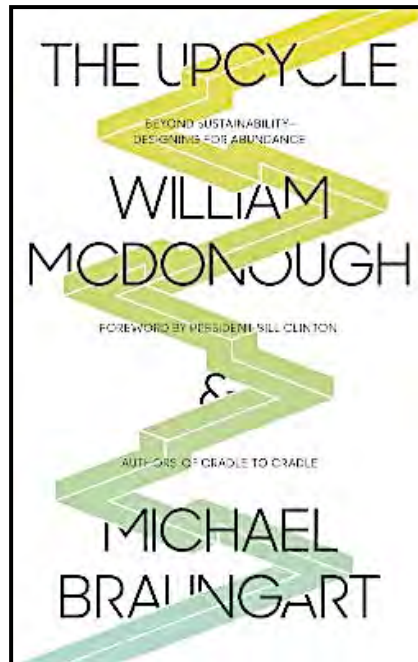
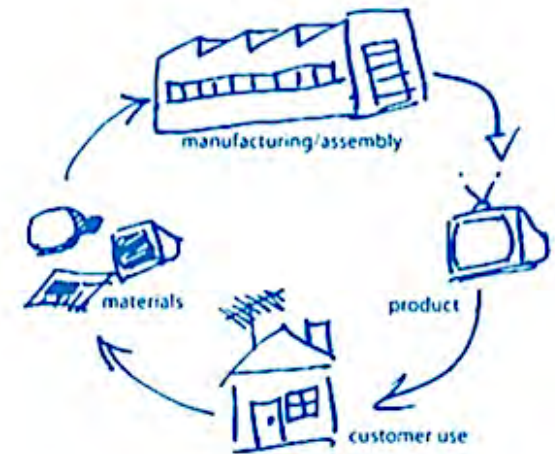
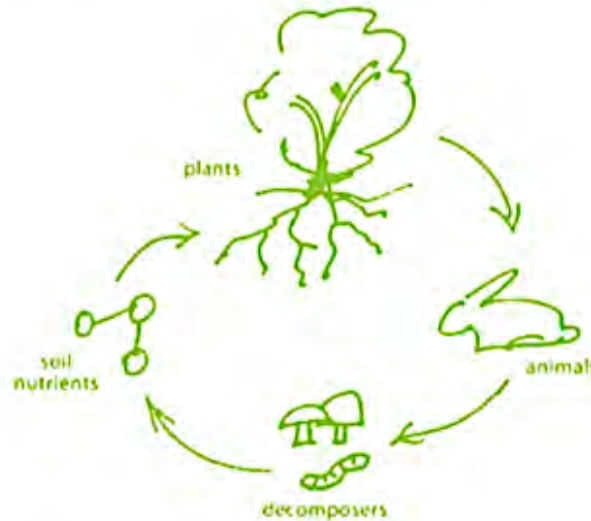
Learning, borrowing, adapting from nature
...massive transformation of technology
...Janine Benyus and other leaders



Circular economy



Cradle to Cradle Framework



Bullitt Centre Seattle

- The world's greenest commercial building
- An exemplar of the Living Building Challenge
- ...meeting all its energy and water needs
- <https://ilbi.org/lbc>





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LIVING FUTURE
INSTITUTE™

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The Standard is...



a philosophy, advocacy platform and certification tool. For more information about the world's most rigorous design and construction standard, visit our new website, living-future.org/lbc.

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Tuhoe's Te Uru Taumatua

- ...the first Living Building in New Zealand



Our cities will be self-sufficient





KATE RAWORTH

exploring doughnut economics

HOME

BLOG

ABOUT

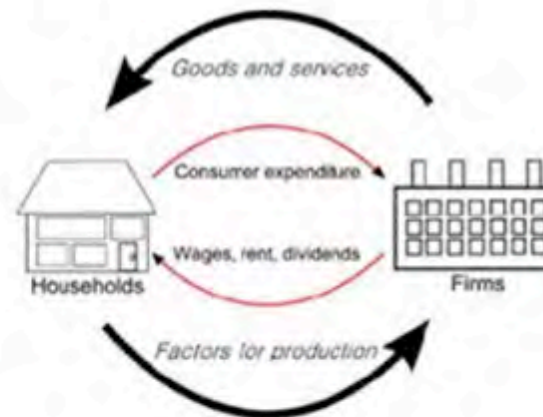
DOUGHNUT

PUBLICATIONS

VIDEOS

EVENTS

why it's time to vandalize the economics textbooks...

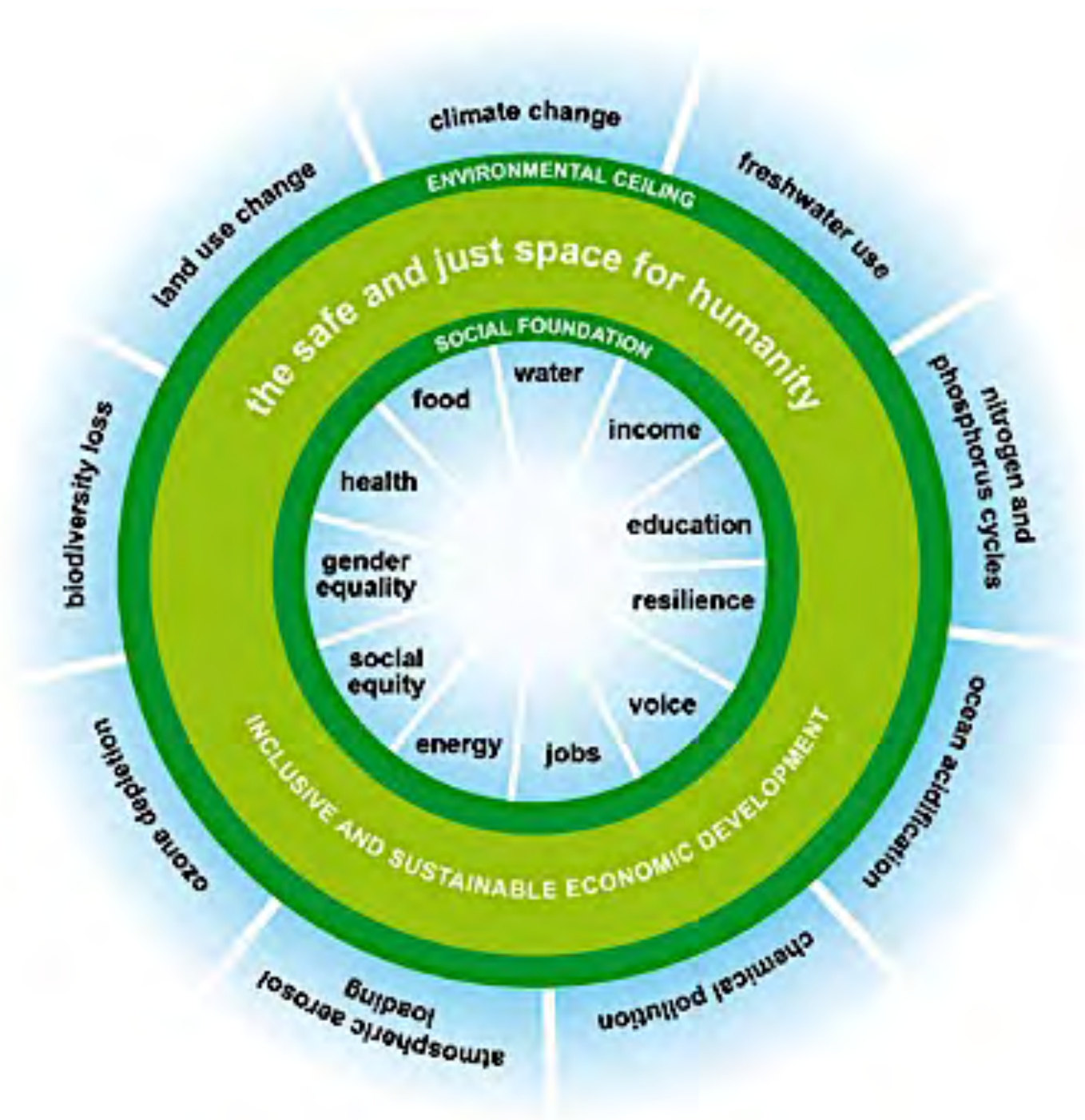


This is the website of Kate Raworth – economist and development re-thinker. My passion is the rewriting of economics to make it a fit tool for addressing the 21st century's social and

What is I

- <http://www.kateraworth.com>
- <http://www.thersa.org/events/audio-and-past-events/2012/doughnut-economics-creating-a-safe-and-just-space-for-humanity>

Doughnut Economics





“We scientists don’t know how to do that”

Gus Speth

Professor of Forestry and Environmental Studies,
Yale University

Shared Planet edition entitled 'Religion & Nature',
BBC R4, October 1, 2013

<http://www.bbc.co.uk/programmes/b03bqws7>

“I used to think the top environmental problems were biodiversity loss, ecosystem collapse and climate change.

I thought that with 30 years of good science we could address those problems.

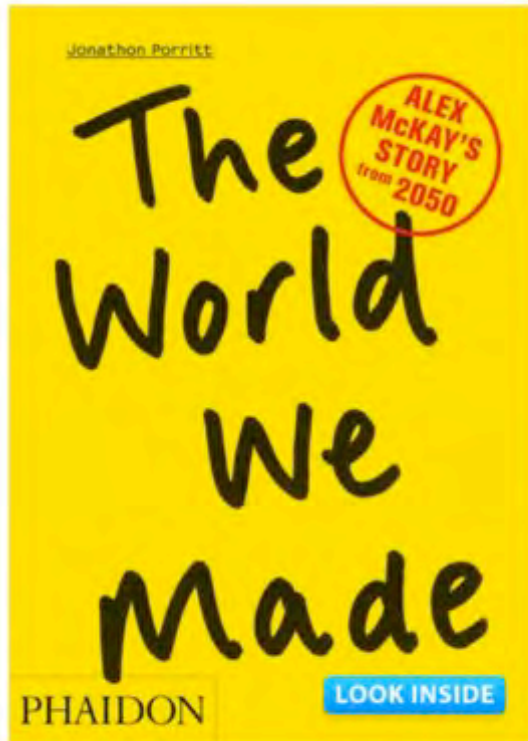
But I was wrong. The top environmental problems are selfishness, greed and apathy...

...and to deal with those we need a spiritual and cultural transformation

- and we scientists don't know how to do that.”

The World We Made

- Jonathon Porritt's view from 2050



The World We Made

Alex McKay's Story from 2050

Our planet's environmental future is usually described in terms of doom and despair. But now, for the first time, *The World We Made* presents a credible, positive vision of our planet that is green, fair, connected and collaborative

ABOUT THE BOOK

This is Alex McKay's story. It shows how the world could look in 2050, if we play our cards right. It's upbeat, dynamic – a world that works well for the vast majority of people.

Alex is a history teacher at Ashton Vale Community College, about to move schools, and challenged by the students to leave them with a parting gift: an account of how the world has changed since Alex became a teacher in the early 2020s.

Agenda

- Wall
- World
- **Revolution**

Re-invention

Scarcity

Abundance

Wealth

Lacto-pharmaceuticals

Milk powder

Wealth

Travellers

Tourists

Wealth

Complexity

Simplicity

Wealth

Society.....LGA, RMA, EEZ

Wealth

Sustainability

Strong

Weak

NZ Vision 2050

- ...by a group of young leaders...
 - ...under the NZ Business Council for Sustainable Development...
 - ...which morphed into Business NZ's Sustainable Business Council
- Download at:
 - <http://www.sbc.org.nz/projects/vision2050>
- Vision 2050 Global report at:
 - <http://www.wbcsd.org/vision2050.aspx>



THE VISION

VISION 2050 NEW ZEALAND

**In 2050 New Zealand has...
six million people living well and
within the limits of the planet.**

Behind this simple statement is a complex set of issues that urgently need addressing. Vision 2050 provides a framework to face these challenges and consider how business can lead the change our country needs.

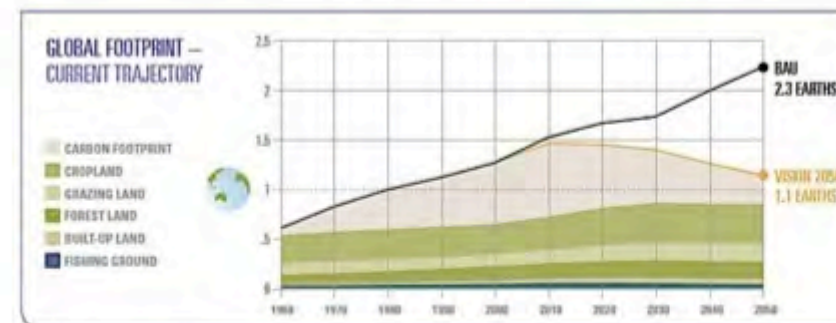
URGENCY FOR CHANGE

We are facing many challenges over the next 40 years that require us to make changes to the way we live and to the way our businesses and other institutions interact with society and the natural environment. Facing up to the challenges means difficult decisions will have to be made now to avoid leaving an unpalatable legacy for our children and grandchildren. Business is a core agent of this change and the urgency must be realised now if we are going to achieve our positive aspiration.

New Zealand's population will increase significantly over the next 40 years. Although the estimated extra one to two million people will not create a densely populated country, this rise will coincide with a world population that has increased by two billion.

How do we meet the needs of a world that is sharing finite resources and overloaded ecosystem services, such as clean air and water?

At our current rate of resource consumption it is projected we will be using 2.3 Earths by 2050.² Clearly, this situation is not sustainable.



LOCATION: WELLINGTON, NZ



IT IS PROJECTED
WE WILL BE USING
2.3 EARTHS
BY 2050.²
CLEARLY, THIS
SITUATION IS
NOT SUSTAINABLE.

FORESTS

New Zealand has abundant and accessible natural resources. The natural forests provide for a thriving timber, energy and wood products industry.

Forests are essential for food security and the production of renewable energy. They also provide important environmental, social and economic benefits.

- 20% of New Zealand's GDP is generated by the forestry sector
- Forestry is a major employer in New Zealand, with 100,000 jobs
- Forestry is a major export earner for New Zealand, with \$10 billion in exports
- Forestry is a major source of renewable energy, with 10% of New Zealand's electricity generated from forestry
- Forestry is a major source of timber, wood and wood products, with 10% of New Zealand's exports generated from forestry

Green design - 25% of NZ's energy needs

Production - 20% of NZ's GDP

Plantation forest - 2010 total area x2

Subsidy - 20% of NZ's energy needs

New Zealand exports - wood derived timber

50% - increased forestry tree plantation

Carbon benefits - 20% of NZ's energy needs

Increased demand for biomass - 20% of NZ's energy needs

20,000 JOBS - generated by the forestry sector

7% - of NZ's GDP is generated by the forestry sector

90% - of NZ's energy needs are met by forestry

24% - of NZ's energy needs are met by forestry

40% - of NZ's energy needs are met by forestry

30% - of NZ's energy needs are met by forestry

7% - of NZ's energy needs are met by forestry

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NEW ZEALAND'S FORESTRY SECTOR IS THE MOST PRODUCTIVE IN THE WORLD

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NEW ZEALAND'S FORESTRY SECTOR IS THE MOST PRODUCTIVE IN THE WORLD

ECONOMY

New Zealand is a place where talent wants to live, where businesses want to work and innovation thrives.

The diversity of economic, social, skills and innovation in New Zealand is a key to our success.

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Open - 80% of 70 year olds are not dependent on Government expenditure

Labour productivity - 20% of NZ's energy needs

Productivity - 20% of NZ's energy needs

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NEW ZEALAND IS IN THE BOTTOM THIRD OF NEW COUNTRIES FOR LABOUR PRODUCTIVITY

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ENERGY & POWER

New Zealand energy is sustainable, renewable and affordable.

Energy is essential for food security and the production of renewable energy. They also provide important environmental, social and economic benefits.

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BUILDINGS

New Zealand houses and commercial buildings are healthy, comfortable and efficient.

Buildings are essential for food security and the production of renewable energy. They also provide important environmental, social and economic benefits.

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18% - of NZ's energy needs are met by forestry

10% - of NZ's energy needs are met by forestry

1/3 - of NZ's energy needs are met by forestry

40% - of NZ's energy needs are met by forestry

50% - of NZ's energy needs are met by forestry

20,000 JOBS - generated by the forestry sector

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WASTE & MATERIALS

Sustainable processes and principles in the design for material management. New Zealand has zero waste.

Waste management is essential for food security and the production of renewable energy. They also provide important environmental, social and economic benefits.

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90% - of NZ's energy needs are met by forestry

2.5 MILLION TN - of NZ's energy needs are met by forestry

26% - of NZ's energy needs are met by forestry

20,000 JOBS - generated by the forestry sector

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TOURISM

Tourism thrives harmoniously with the environment while providing high economic value to New Zealand.

Tourism is essential for food security and the production of renewable energy. They also provide important environmental, social and economic benefits.

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6.9 BILLION - of NZ's energy needs are met by forestry

3.8% - of NZ's energy needs are met by forestry

20,000 JOBS - generated by the forestry sector

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A
race has
begun.

And we are in it.

[Join the race](#)

[Download](#)

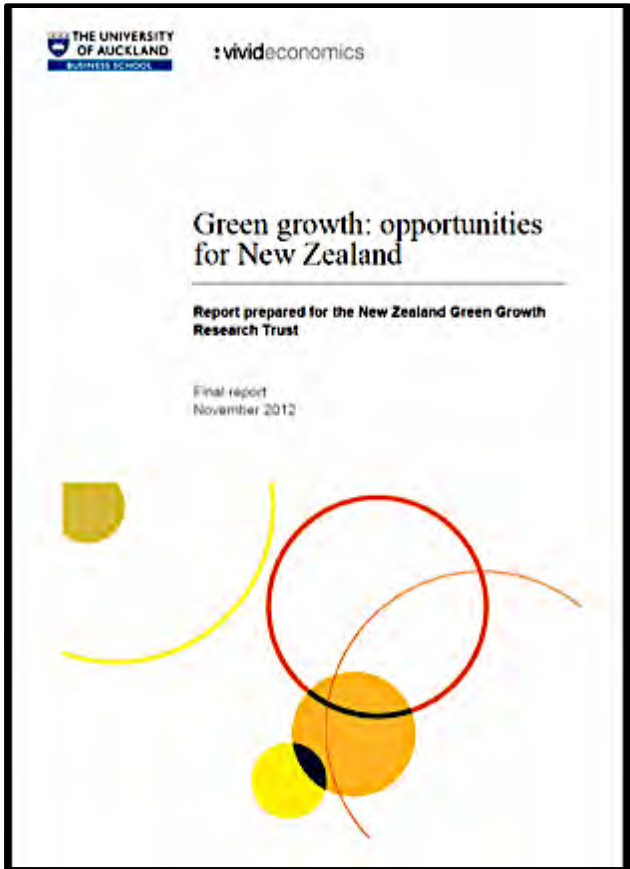
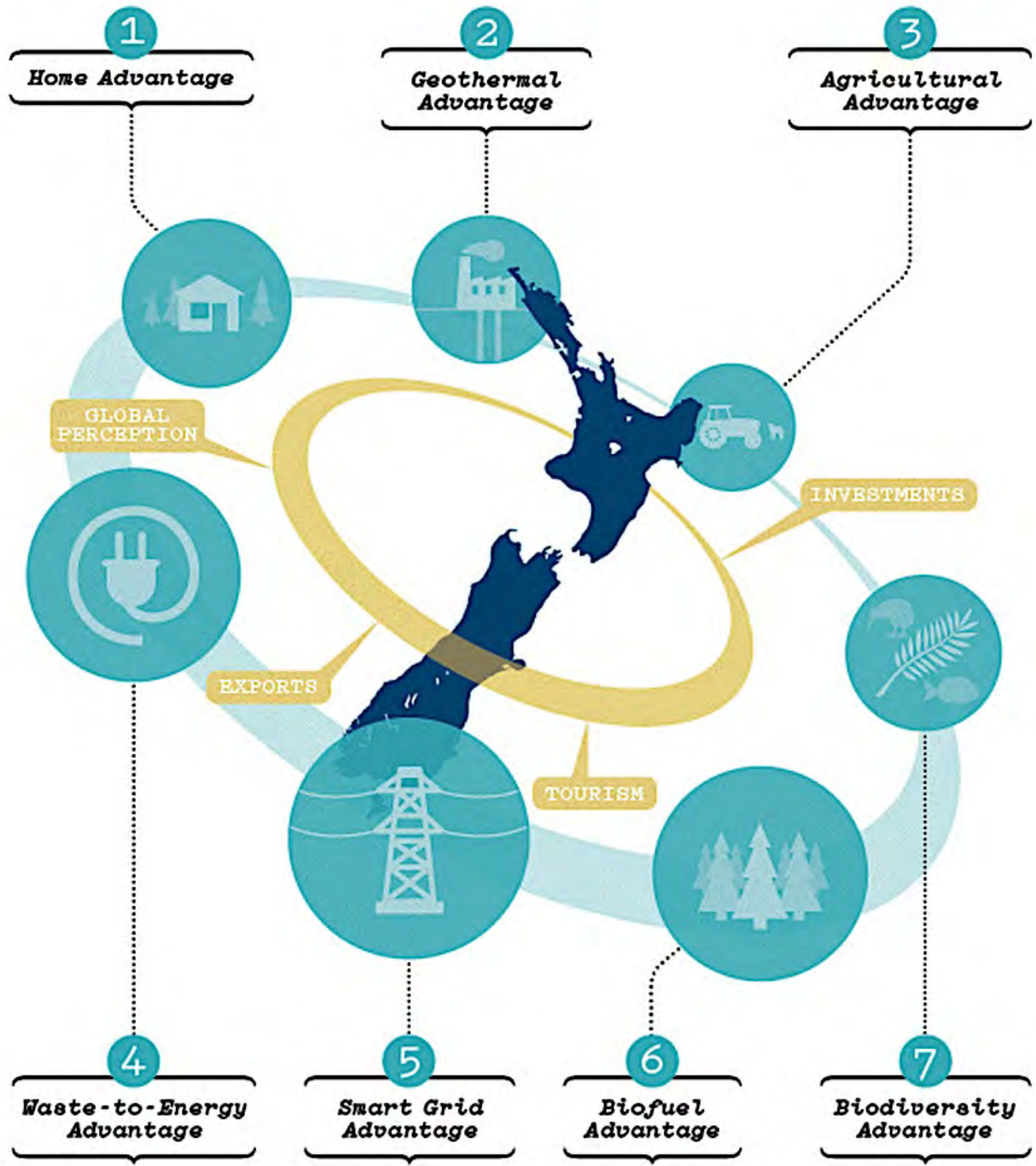
There is an international 'green race' being run. Every country in the world is taking part. It is as inevitable as it is unstoppable. And New Zealand is well placed to lead.

What we do next will dictate whether we continue to be on the pace – or be left behind.

Current Supporters

7,818

People have signed up to show their support for the Pure Advantage





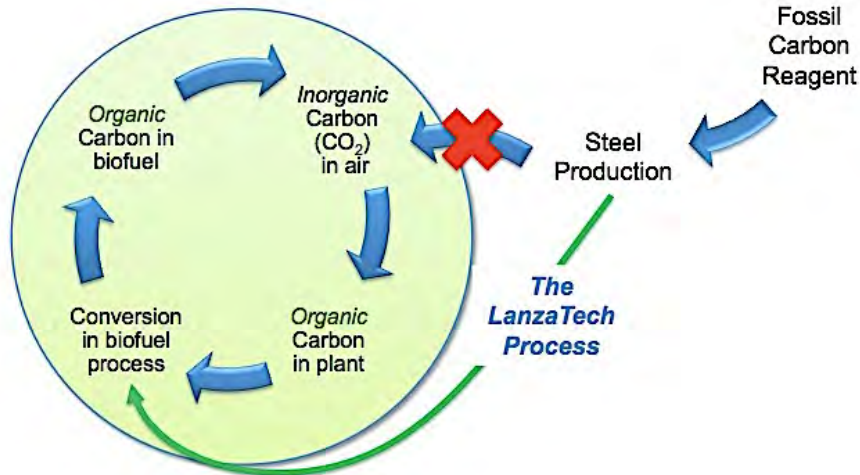
Manuka – Katrineholm, Sweden

- Client: Svensk Biogas
- This self contained biogas upgrading system includes a fully unattended vehicle refuelling station, meeting the fuel needs of approximately 330 cars
- Manuka, our smallest unit, is competitively priced and has been developed specifically for small scale waste water and agricultural applications
- 80 Nm³/h raw biogas upgraded to vehicle fuel
- Sewage sludge
- Delivery 2009



LanzaTech...clean tech leader

- Makes biofuel from industrial waste gases
 - Turns greenhouse gas liability into profit
 - World pioneer of the science
 - Auckland-based; NZ Steel pilot plant
 - First commercial plant in China
 - Certified sustainable biomaterial
- Big venture capital backing US\$150m
 - NZ: Stephen Tindall
 - US: Vinod Khosla
 - China: Qiming Ventures



helping industry complete the cycle



welcome

LanzaTech has developed a proprietary platform for producing lowest-cost liquid biofuel in any industrialized geography, at a much larger scale than is currently being envisioned elsewhere.

Specifically, we have developed a fuel production process that can be retrofitted to industrial facilities which uses the carbon monoxide component of waste flue gases as a feedstock.

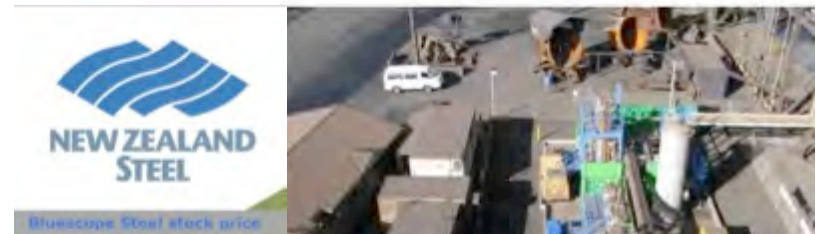
Industrial flue gases are an inherently low cost, high volume, point location resource, produced in most industrialized regions. LanzaTech's mission is to enable industries that produce high volumes of carbon monoxide containing flue gases to become the lowest cost, highest volume producers of liquid biofuel.

location

24 Balfour Road
Parnell Auckland NZ
Phone: +64 9 304 2110
Fax: +64 9 929 3038

[CONTACT US >>>](#)

The LanzaTech Pilot Plant



[Bluescope Steel stock price](#)

“Stump to Pump”



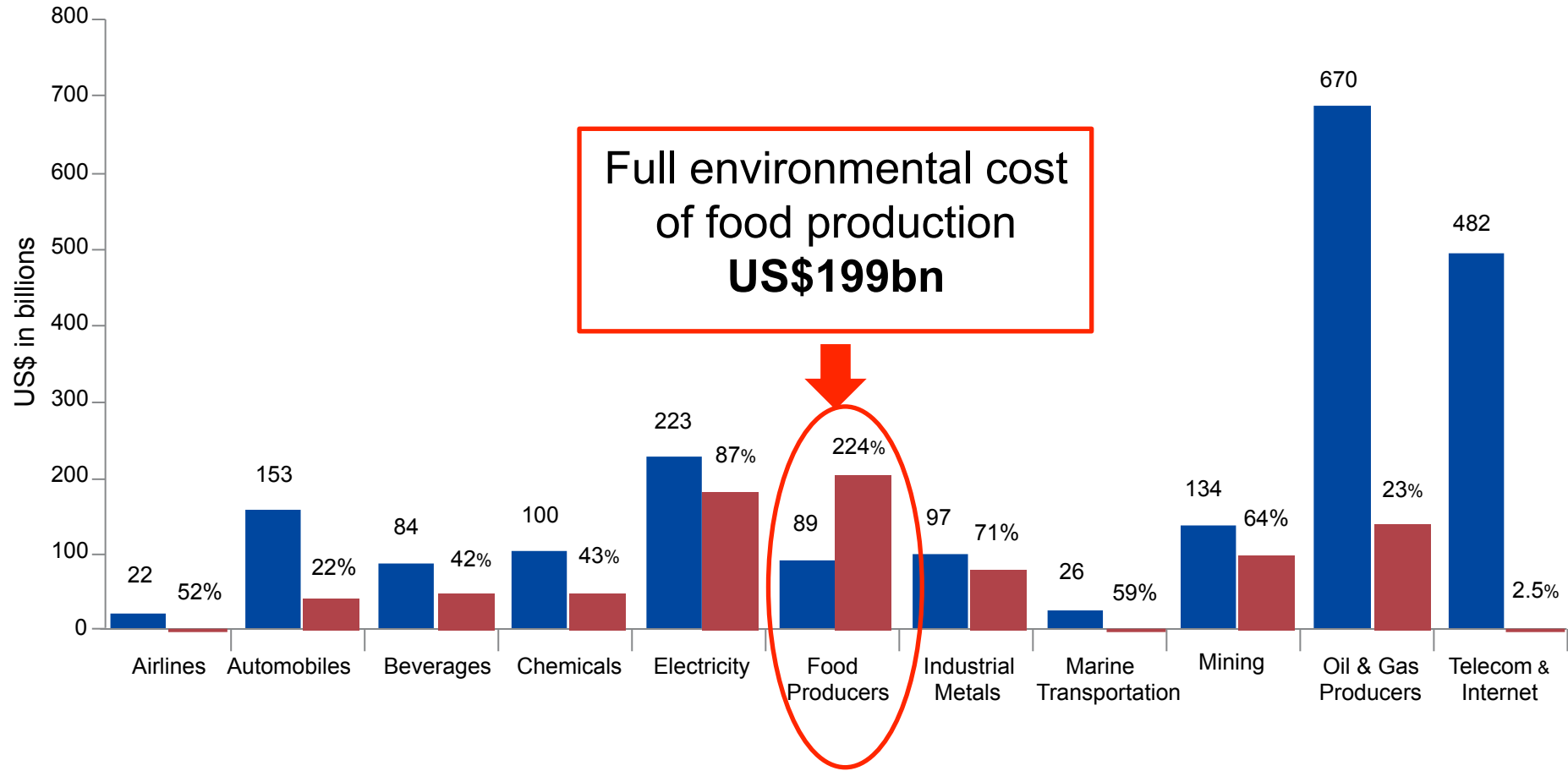
- Biomass to biofuel...wood waste to ethanol
 - Norske Skog – wood waste & geothermal power at Kawerau
 - Z Energy – refinery, distribution system & retail outlets



- Primary Growth Partnership:
 - \$13.5m – Norske & Z co-fund with government
 - 14-month project to November 2014 to investigate feasibility
 - If proven, then modular test plant to explore scaling up
 - Hope – over 20-25 years:
 - \$1bn pa GDP gain; 1,200 regional jobs; displace some fossil fuels
- Technology works elsewhere e.g. KIOR in US

Opportunity:

- Reducing farming's environmental impacts will:
 - Improve nutrient and resource efficiency
 - Increase value, resilience and sustainability



■ 2010 EBITDA ■ 2010 total environment cost as a % of EBITDA
Source: Trucost 2012, KPMG

Reinventing farming

- 1 litre of milk = 940 gm of CO₂ equivalent

20,000,000,000 litres = 18,800,000 kg of CO₂ eq

- 18.8m tonnes of CO₂ eq per year is not a waste product, or a liability

**Closing the nutrient cycle...
is a brilliant business opportunity...
healthier cows, soil and rivers...
= *more very high value nutrition***

Building value: Comvita's 10-year transformation

FREE FREIGHT OVER \$30 BUY NOW! | CONTACT US | PROMOTIONS

NEW ZEALAND REGISTER LOGIN CART \$0.00

COMVITA[®] LEARN ABOUT US • NATURAL HEALTH • SKIN & BEAUTY • BLOG • INVESTOR Search...

WELCOME

to nature's health system

Comvita offers **Natural Health** and **Skin Care** products that nourish, protect, restore and revitalise.

SHOP NOW

NEWSLETTER

Receive Comvita offers and updates

Email...

visit our **Blog**

“
Over 4.5 billion years nature has created a balanced system of health that is all around us and within us.
”

Comvita's value chain

- Building it by...
 - Floating on NZX to raise funds
 - Buying back distribution
 - Investing in retail
 - Investing in science
 - Investing upstream in bees
- Virtuous cycle...
- ...each step generated new cash flow to take the next



...Comvita today



About Comvita

COMVITA FOUNDER, CLAUDE STRATFORD BEGAN WITH A VISION.

His wish was to produce natural products that work, and acting in a way which preserves the environment for generations to come!

[ABOUT COMVITA](#)



Ingredients & Benefits

SHARING NATURE, SHARING LIFE

Comvita sources ingredients in their purest form, optimising their natural properties, delivering to you the benefits of nature.

[LEARN MORE](#)



Manuka Honey

PURE NEW ZEALAND MANUKA HONEY, UMF® GUARANTEED.

UMF Manuka honey is nature's gift, and a jar of liquid gold sealed with an approved Unique Manuka Factor (UMF) logo.

[ABOUT MANUKA HONEY](#)



Huni XA

MANUKA HUNI XA CONTAINS ACTIVE COMPOUNDS THAT HELP SLOW SIGNS OF AGING.

The phenolic structure, Manuka honey geographical source, as well as the blending process we use to create our high performance skincare formulations.

[ABOUT HUNI XA](#)



Broccoli

AN ANTIOXIDANT BOOSTER WHICH HELPS TO PROTECT AGAINST CELLULAR DAMAGE.

We now recognise that while fruit and vegetables of many colours and varieties are important in our diet as they offer us greater protection.

[ABOUT BROCCOLI](#)



Synergy 12

OLIVE LEAF EXTRACT IS AN EXTREMELY POWERFUL NATURAL ANTIOXIDANT AND FREE RADICAL SCAVENGER.

Our unique, fresh Olive Leaf Extract contains no less than 12 natural polyphenolic antioxidants.

[ABOUT SYNERGY 12](#)



Propolis

PROPOLIS IS A POWERFUL DEFENSE SYSTEM PRODUCED BY NATURE TO PROTECT AND HEAL.

A natural antioxidant produced by bees, Propolis acts as nature's best defence to protect and heal.



Olive Leaf Extract

OLIVE LEAF EXTRACT IS A COMPLETELY NATURAL WAY TO UNLOCK YOUR BODY'S VITALITY.

Traditionally used for immunity, cardiovascular health is now clinically researched to support blood sugar levels.



Omega 3

COMVITA'S OMEGA 3 IS A NATURAL FISH OIL SOURCED FROM DEEPWATER FISH.

Omega 3 fish oils support cellular function, heart and cardiovascular health as well as joint suppleness and flexibility.



Oral Care Ingredients

OUR NEW AND IMPROVED TOOTHPASTES ARE A HEALTHY CHOICE FOR THE ENTIRE FAMILY.



Ingredients Glossary

COMVITA SOURCES INGREDIENTS IN THEIR PUREST FORM AND OPTIMISES THEIR NATURAL ACTIVE PROPERTIES.



Beauty Ingredients

WE CAREFULLY SELECT INGREDIENTS FOR OUR FORMULATIONS ESPECIALLY FOR YOUR SKIN.

Deals and relationships

- In 2010, Comvita licensed professional wound care to Derma Sciences, US
- In 2013, Derma Sciences took 7.3% stake in Comvita to help fund upstream investment in manuka honey production



The screenshot shows the Derma Sciences website. At the top, the logo "DERMA SCIENCES" is displayed with a decorative line of green dots above it. To the right, there are navigation links: "HOME | CONTACT US | SITEMAP" and a search box with a "SEARCH" button. Below this is a dark blue navigation bar with white text: "About Us | Products | eLearning Portal | Contract Manufacturing | Ordering Info | DSC 127 | Investor Relations". The main content area has a yellow background with a honeycomb pattern. On the left is a logo consisting of three yellow hexagons, with a white cross in the leftmost one. To the right of the logo, the text reads "WOUND & BURN DRESSING" in a smaller font, followed by "MEDIHONEY®" in a large, bold, black font. Below this, a breadcrumb trail reads: "Home / Products / Advanced Wound Care / MEDIHONEY® / About MEDIHONEY® / Evidence". On the left side of the page, there is a vertical menu with the following items: "Cochrane Review", "About MEDIHONEY®", "Education", "Evidence" (highlighted in blue), "Dressings", "A Guideline for Care", "Patient Information", "Patent Details", and "Product Ordering". The main content area features a headline in red: "Clinical evidence demonstrates the effectiveness of Active *Leptospermum* Honey in helping wounds to heal." Below the headline is a horizontal line, followed by a paragraph in orange: "A 108-patient RCT – Active *Leptospermum* Honey vs. Hydrogel – a prospective, open label, multicentre, randomised controlled trial to compare the desloughing efficacy and healing outcomes in venous ulcers.¹". Below this is another paragraph in black: "Inclusion criteria – Patients with venous leg ulcers, at least 6 months in duration, not progressing under standard compression therapy, with >50% slough, not taking antibiotics." On the right side of the page, there is a small image of a brochure with the Medihoney logo and a group of people. Below the image, the text reads: "Download MEDIHONEY® Brochure".

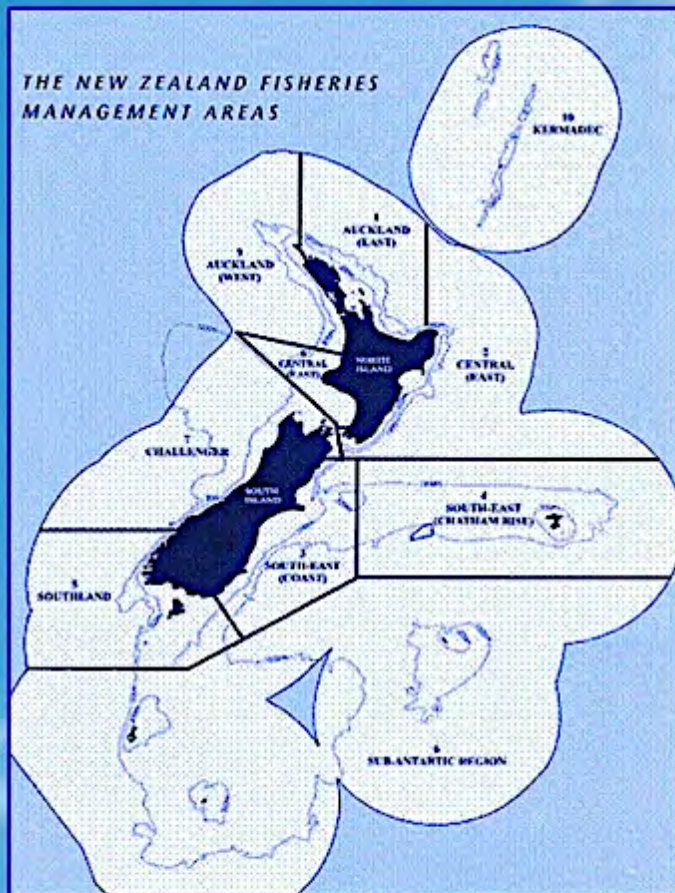
Comvita: High science, high value

- 250gm of honey
- Clover honey..... 1
- Comvita wound care..... 25x
- Comvita wound dressing..... 55x



The screenshot shows the Comvita website homepage. At the top, there is a banner with the Comvita logo and the tagline "The Nature of New Zealand" on the left. In the center, a woman is smiling and holding a jar of honey. On the right, the text "Our raw ingredients" is written in a cursive font. Below the banner is a navigation menu with links for "Home", "About Us", "News and Updates", and "Shop Online". To the right of the navigation menu are language options: "Global", "UK", "中文", and "日本語", followed by a search bar. The main content area features a "Welcome to Comvita" heading and a sub-heading "Founded in 1974 by Claude Stratford, with a mission to". On the far right, there is a "News Preview" section with three news items: "Export Award for Comvita Caps A Year of Awards", "Driving Green Reaps Rewards", and another partially visible item.

Re-thinking the New Zealand Fisheries Value Chain

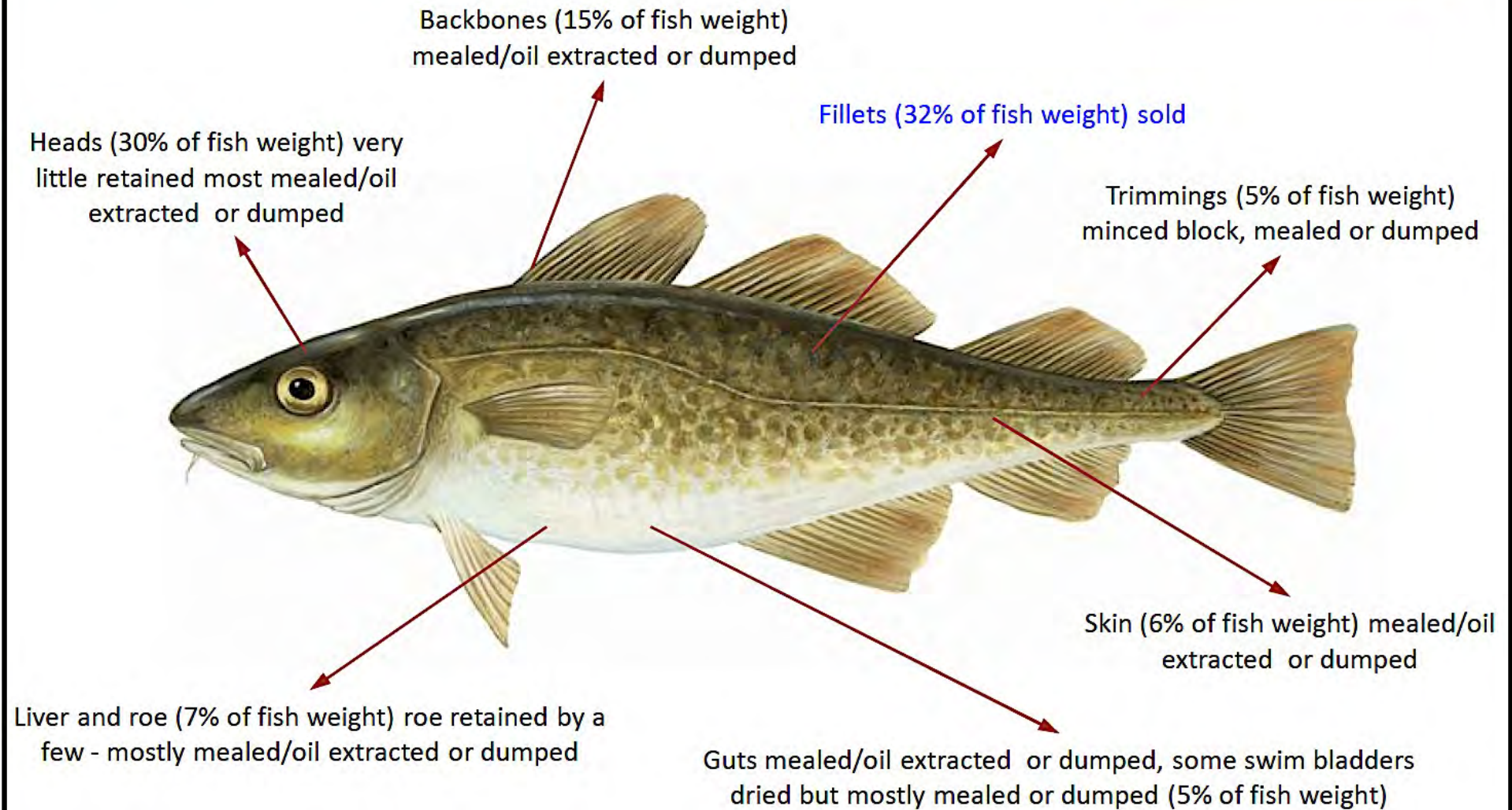


Glenn Simmons, Dr Christina Stringer,
Professor Hugh Whittaker and
Associate Professor Manuka Henare

Department of Management and International Business
The New Zealand Asia Institute
Mira Szászy Research Centre for Māori and Pacific Economic
Development
The University of Auckland Business School

Presentation to
Environmental Defence Society Conference
6 August 2012

Up to 70% of the fish is turned into low value fishmeal, some oil or wasted



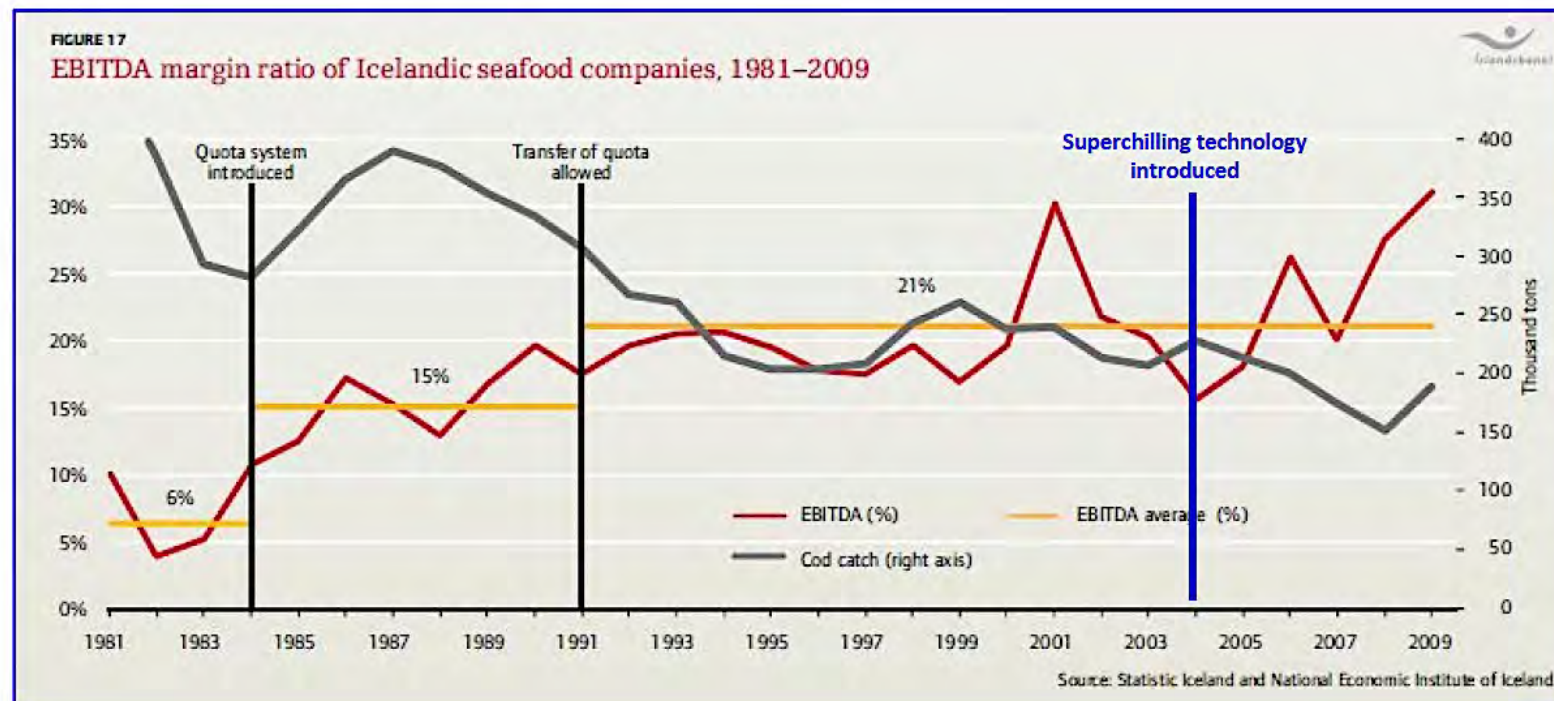
“There is industry awareness of the potential to use the whole fish, some boutique players playing with some byproducts, but no proper commercialisation of the opportunities” (pers. comm. 2012).

An alternative, value adding, approach

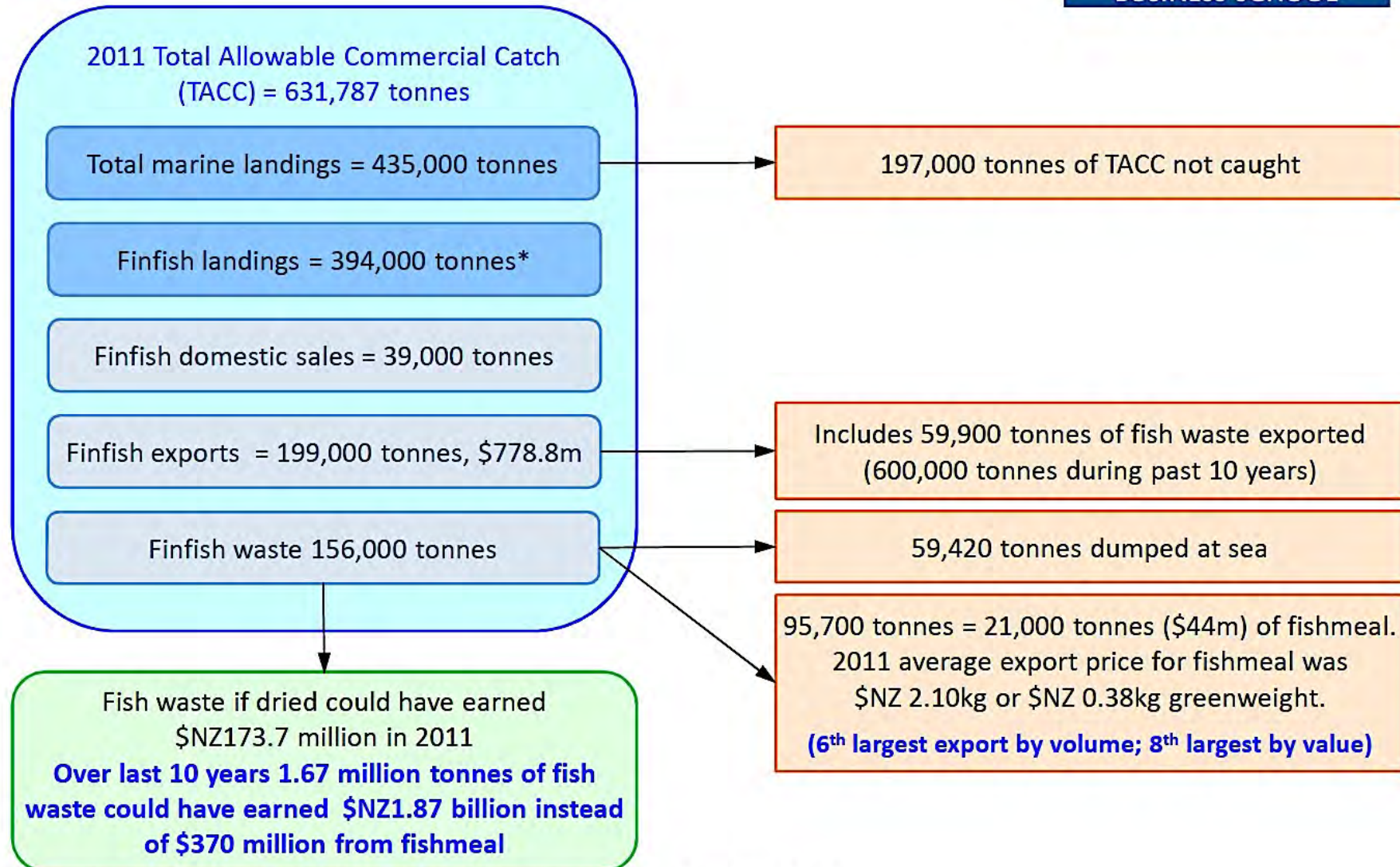
New Zealand industry average EBITDA **less than 10%** whereas the Icelandic Industry average EBITDA is **more than 30%**.

Iceland has been able to achieve a high average EBITDA through, for example:

- Transparency
- Auction system
- A collective commitment to innovation



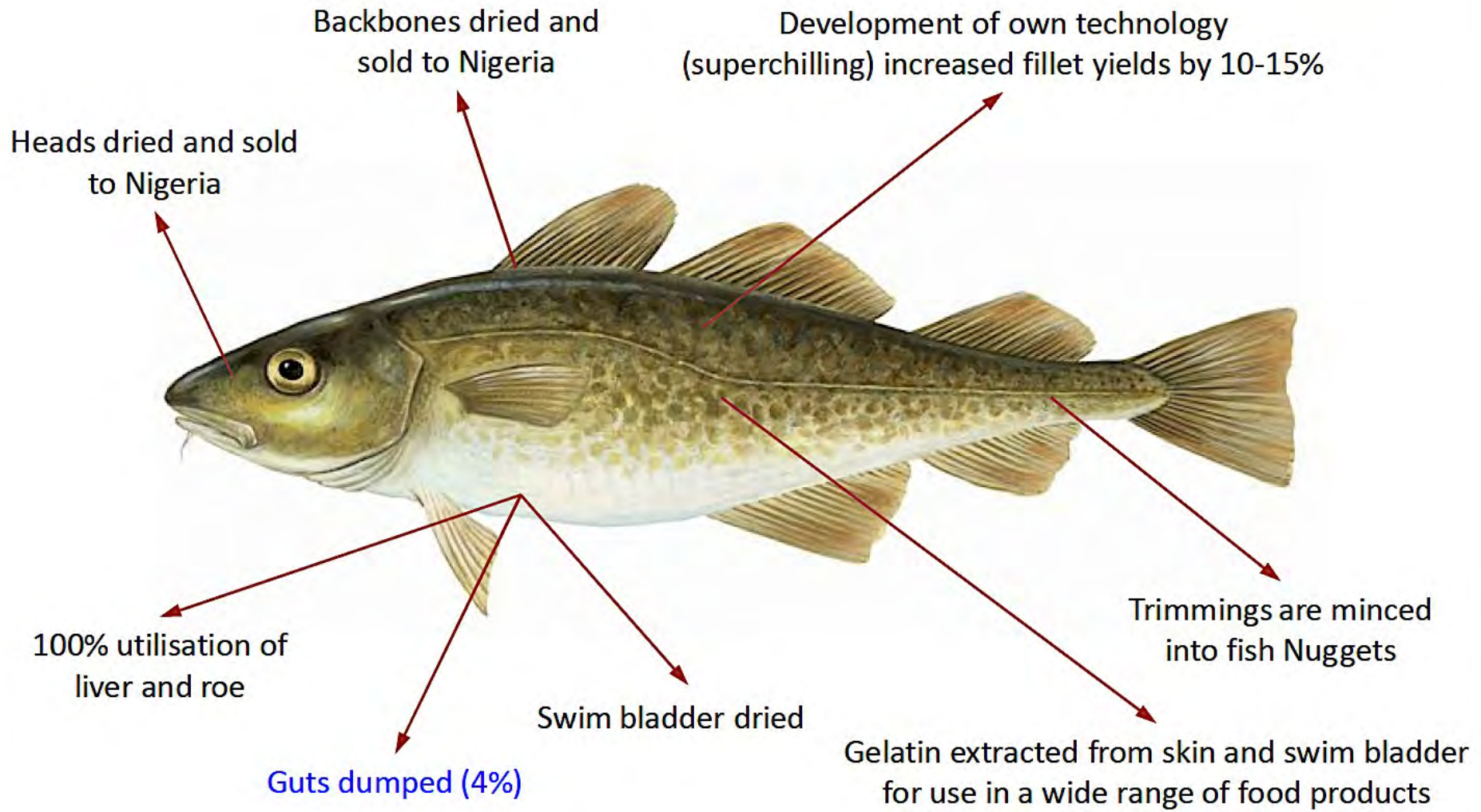
Putting a figure on missed opportunity



Sources: Compiled and calculated from Ministry for Primary Industries and Statistics New Zealand data

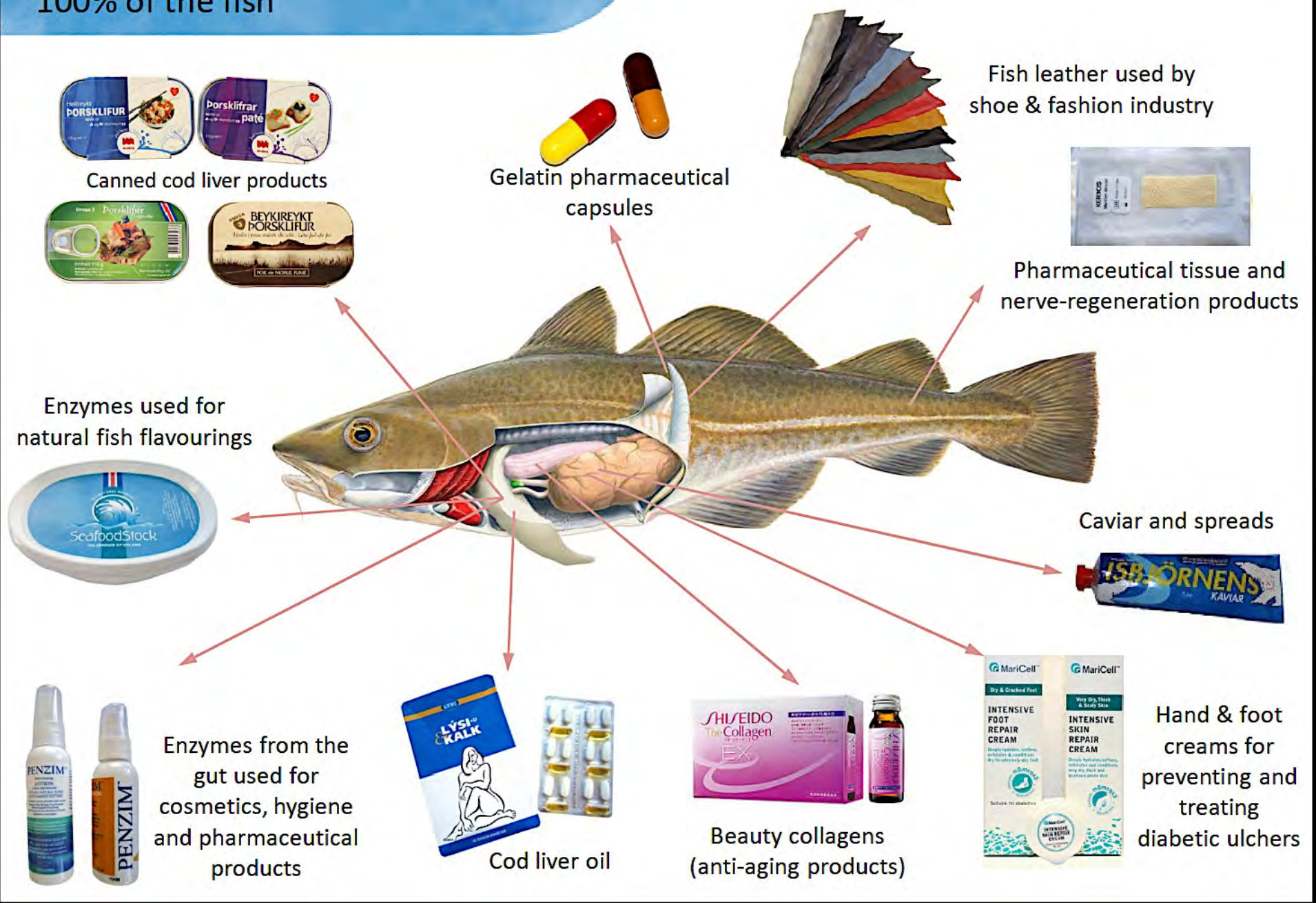
*Does not include illegally dumped fish, estimated at between 79,000 and 197,000 tonnes

Iceland utilises 96% of the fish

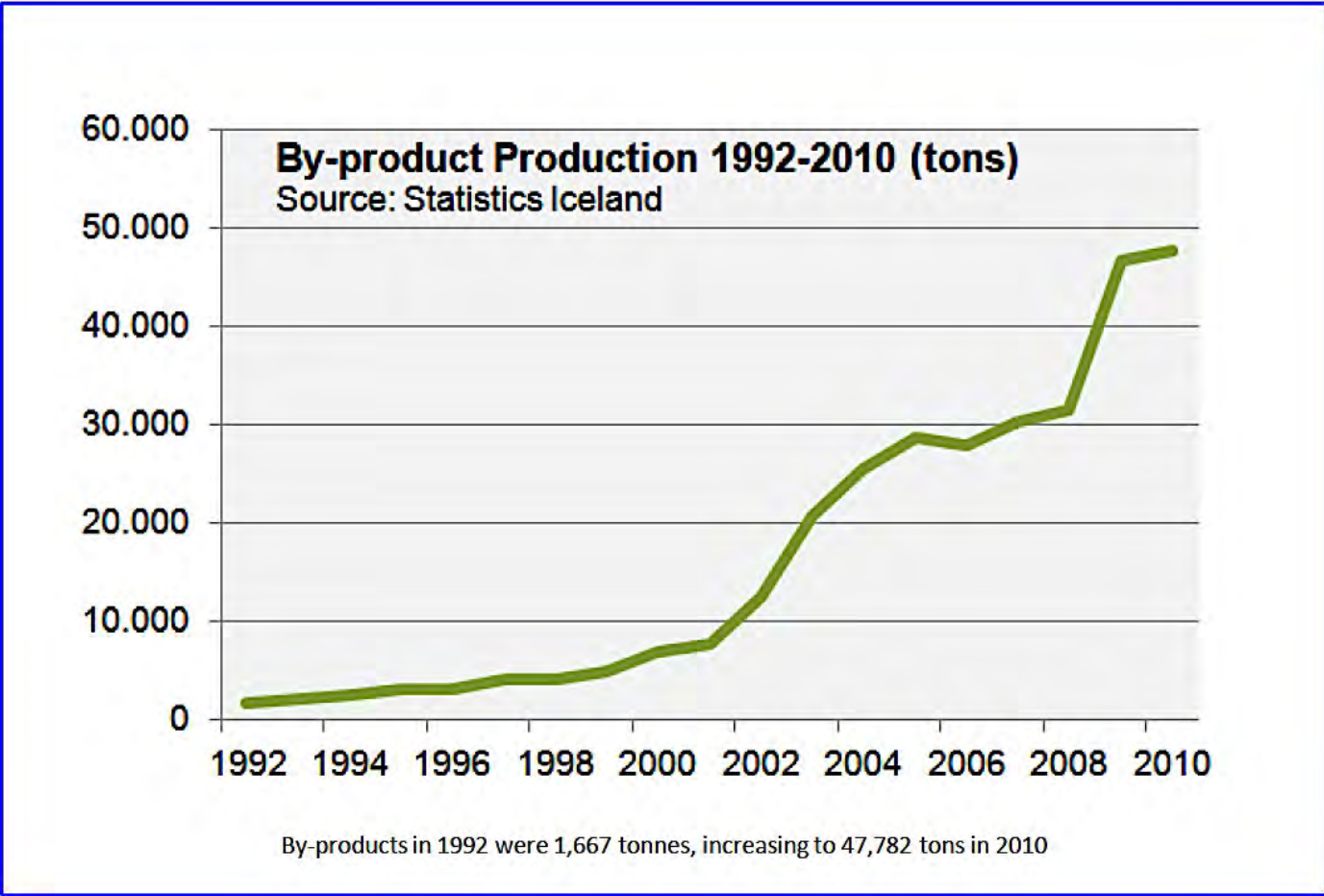


Nigeria buys dried heads for FOB US \$5.50/kg and frames/bones for US \$2.50/kg.

Advanced derivatives: aim to use 100% of the fish

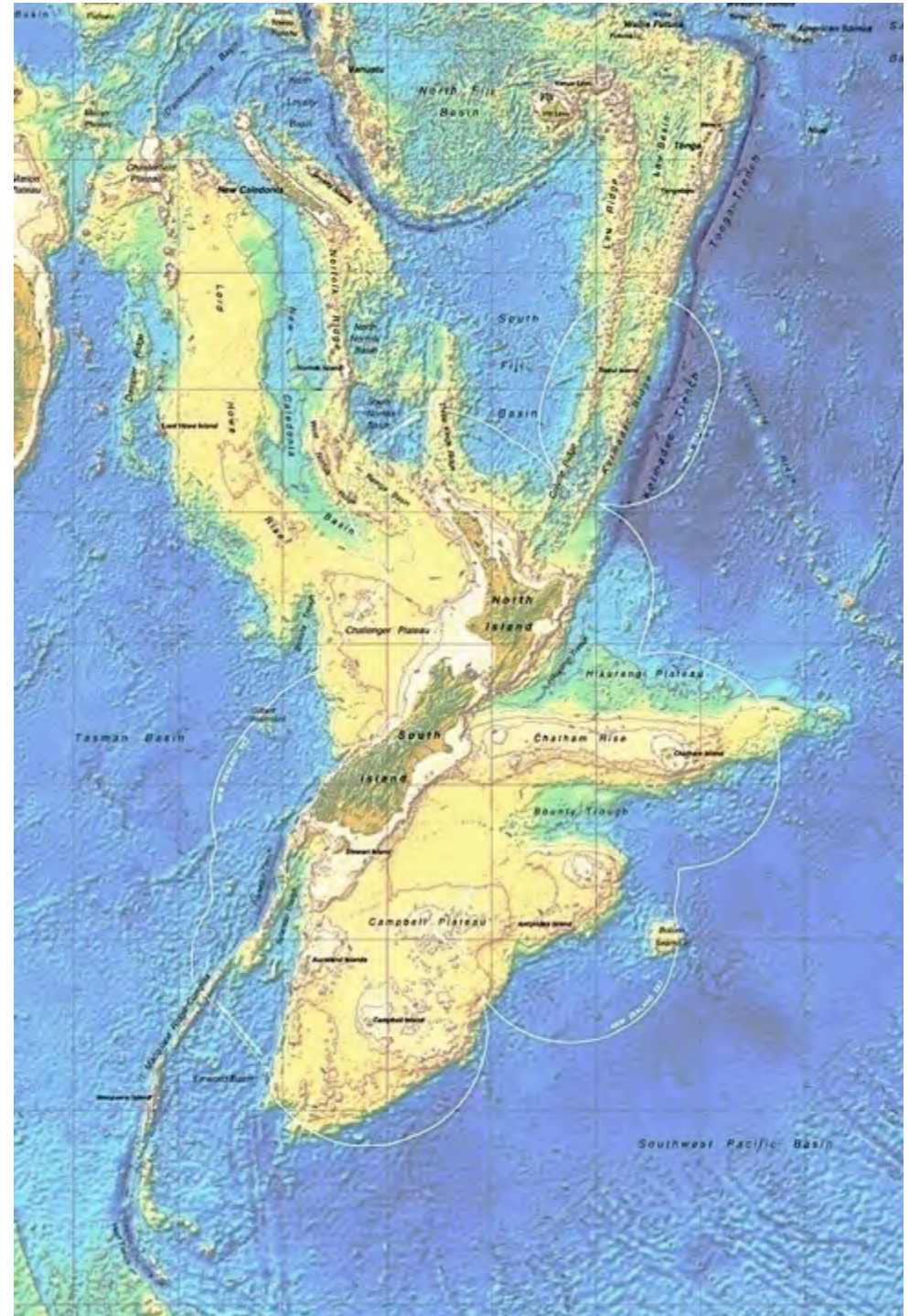


Creating new industries from marine by-products



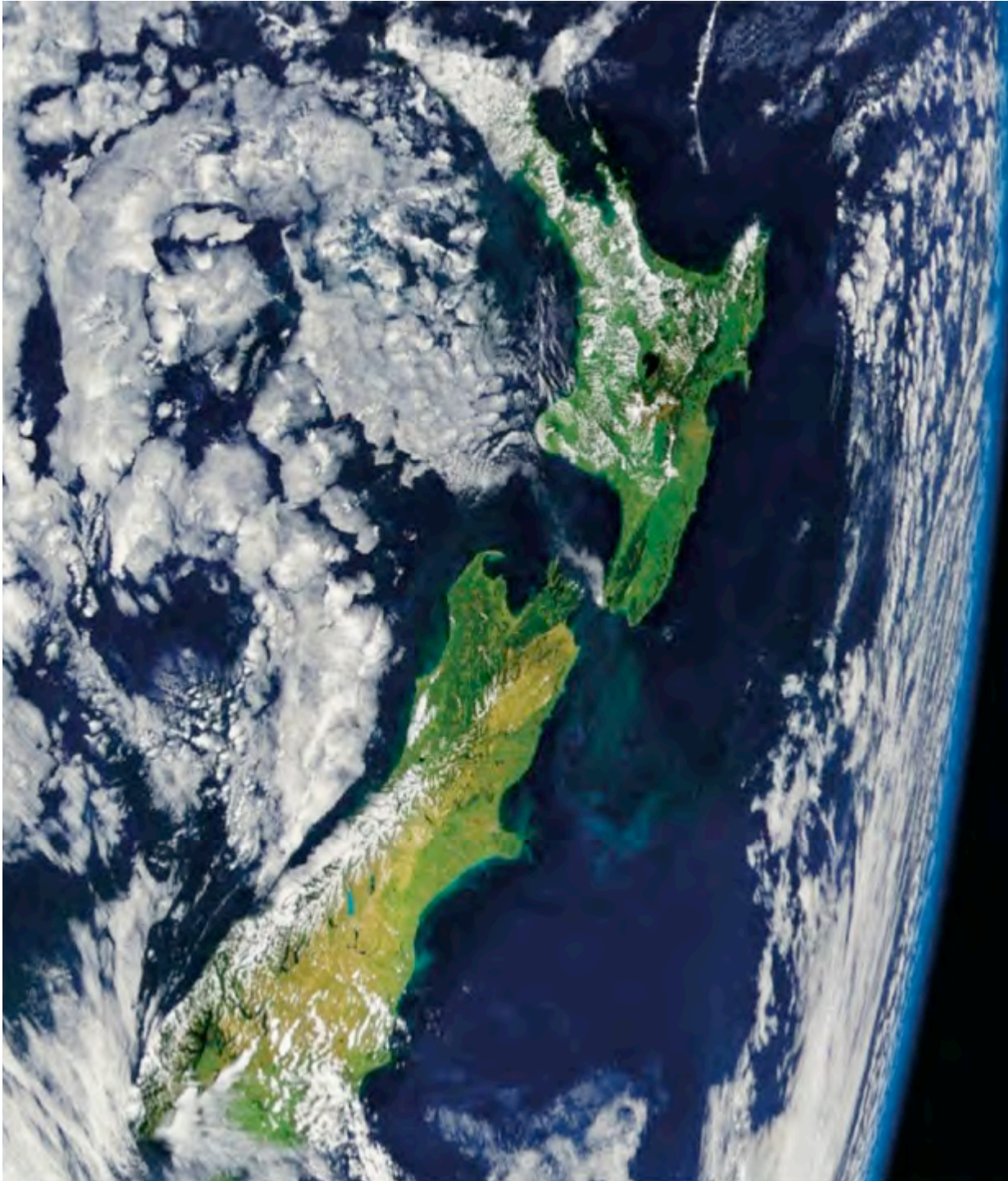
Our future...and the ultimate challenges

- NZ Land: 270,000 sq km
 - *Australia's 28x NZ*
- NZ Oceans: 5.8m sq km
 - *4th largest in the world*
 - *Australia's 1.4x NZ's*
- Huge responsibility:
 - ...to nurture
 - ...to use responsibly
 - ...to sustain us
 - ...we get \$184bn of ecosystem services for free
- We need new values, systems, learning, collaboration:
 - ...to be sustainable
 - ...to offer hope to the world



...and in Antarctica too





**“You’ll have
no future...**

**...if you don’t
make one
for yourself”**

Johnny Rotten